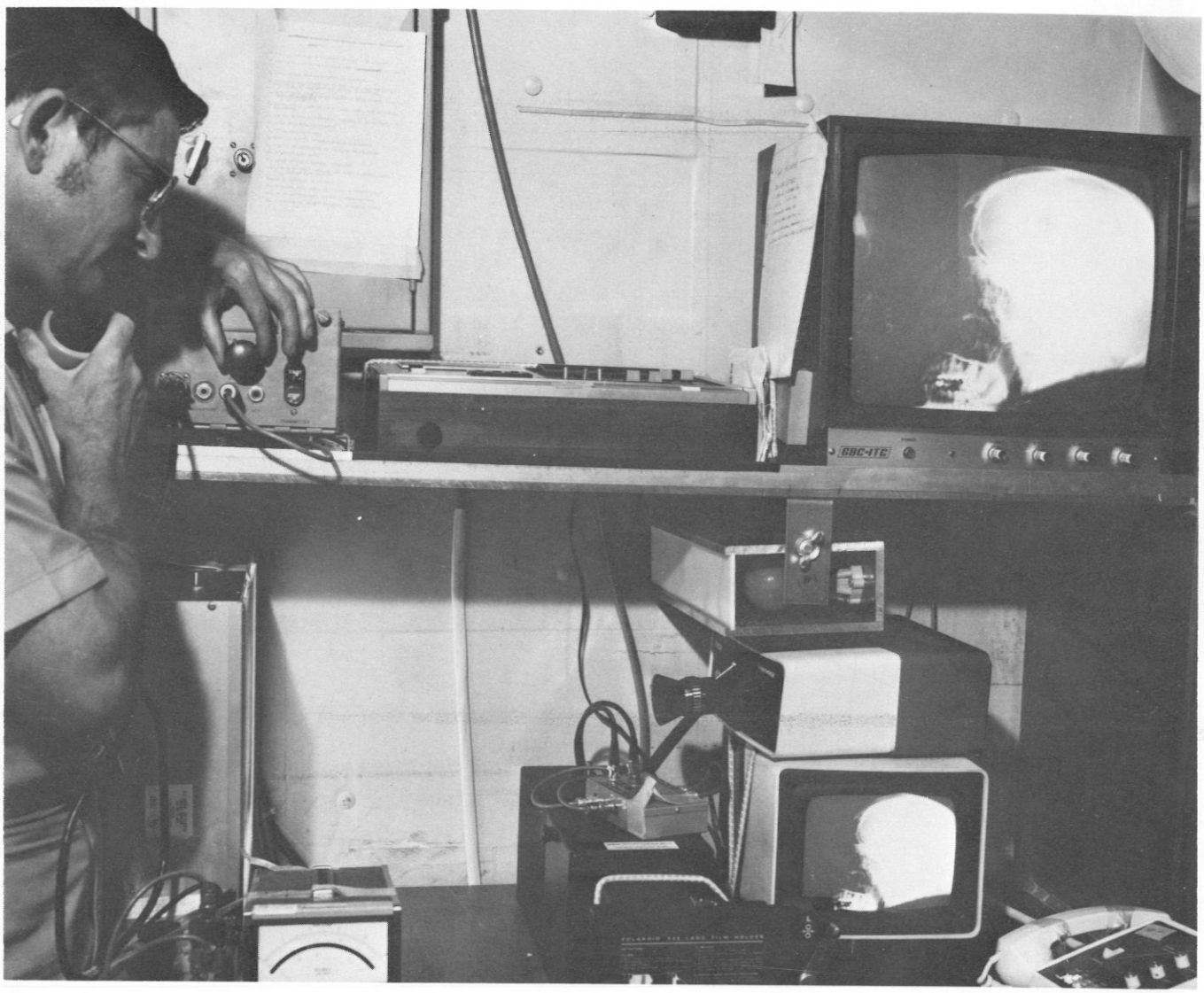
U. S. NAVY Medicine



September 1975

UNITED STATES NAVY MEDICINE

Vol. 66 September 1975 No. 3

POLICY

U.S. NAVY MEDICINE is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry and allied sciences. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article, in its original form. The opinions and conclusions expressed in the articles or items included herein are those of the respective authors and do not necessarily represent the views of the Department of the Navy, the Bureau of Medicine and Surgery or any other governmental department or agency thereof.

DISTRIBUTION

U.S. NAVY MEDICINE is distributed to active duty Medical Dept. officers via the Standard Navy Distribution List (SNDL) vice personal addresses. Requests to increase/decrease the number of allotted copies are forwarded via the local command to *U.S. NAVY MEDICINE*, Code 0010, Bureau of Medicine and Surgery, Washington, D.C. 20372.

Retired and Reserve officers on inactive duty may subscribe by forwarding request with full name, rank, corps, status, address and zip code.

Notification of address changes should be forwarded together with a recent mailing label.

The issuance of this publication approved in accordance with NAVEXOS P-35.

NAVMED P-5088

CONTENTS

Credits: All pictures are Official Navy Photographs unless otherwise indicated.

COVER: Using the remote medical diagnosis system, HMC M.L. Gilpin transmits skull X-rays from the sick bay of the USS *Juneau* to the emergency room at NRMC San Diego. Further information about this new system and other advances in medical instrumentation can be found in Dr. John Silva's article beginning on page 9.

The continued support of the Media Division, Educational Programs Development Dept., Health Sciences Education & Training Command (HSETC), NNMC, Bethesda, Md., is gratefully acknowledged.

CORRESPONDENCE AND CONTRIBUTIONS from the field are welcomed and will be published as space permits, subject to editing and possible abridgment. All material should be submitted to the Editor, *U.S. NAVY MEDICINE*, Code 0010, Bureau of Medicine and Surgery, Washington, D.C. 20372.

NOTICES should be received not later than the third day of the month preceding the desired month of publication.

VADM Custis checks on a patient's progress at NRMC San Diego.

from the Chief

From time to time, as you know, various officers on my staff develop thoughts and ideas for this column, and I am happy to give them credit for their excellent presentations. This month's "From the Chief" was provided by CDR Pat Kane, my deputy comptroller. He has succinctly captured my feelings about an area of our regionalization efforts which can and must be improved. His thoughts quoted below I share and could not have expressed better.

"Regionalization of naval health care facilities was implemented in 1971 with the establishment of the Naval Regional Medical Center, Portsmouth, Virginia. The success of that initial effort provided the impetus for further expansion of the concept and today, with minor exception, all shore-based primary health care facilities world-wide are under the management umbrella of the Surgeon General. In 1974, the dental regionalization program was implemented to consolidate our dental resources for more effective and efficient management of the Navy-wide oral health care delivery system. This most recent effort is on track and the initial response has been gratifying.

"Certainly these achievements have not been without adversity, and the Surgeon General considers it a singular tribute to your professional and management expertise that seemingly insurmountable obstacles were traversed with considerable skill and alacrity. In keeping with our primary goal of

guarding the health of the Navy, we are achieving the regionalization objectives of improving health care services; improving patient, staff, and command satisfaction; and achieving more efficient, effective use of health care resources.

"But this high level of professional health care is being threatened by factors largely beyond our control. Among these factors are the growing demand for service, increasing costs related to technological advances, and expanding scarcity of skilled health professional personnel. Each of these factors has its impact on the ever increasing level of resources required to accomplish our mission. Moreover, each factor has contributed to the intensity of the budgetary crunch we are now experiencing. At each step in the budgetary process we are challenged to support and defend hard core resource requirements. Frequently, we find it necessary to defer highly defensible budgetary programs just to maintain current operations within the existing funding constraints. It is in this area of current operations that we must direct our efforts to ensure that resources are not being dedicated to areas of support that are "soft" in terms of cost effectiveness, thus derogating our capacity to sustain and improve our direct health care capability.

"Accordingly, the Surgeon General has directed that a selective review be conducted of our administrative/logistical support functions to determine those areas susceptible to consolidation on a regional or interregional basis. The initial review will be limited to fiscal and accounting support services that can be consolidated with other Bureau-managed activities to maximize existing resources without sacrificing current levels of support. Commanding officers will soon be asked to provide information and assistance in connection with this review.

"Realistically, current and projected funding limitations, ceiling limitations, penetrating health-care-related study groups, both within and outside Navy, militate against the perpetuation of functions that are not responsive and cost effective. This is consistent with our regionalization efforts to achieve more efficient and economical organizational structure. However, any realignment of support functions must observe the integrity of command and the prerogatives inherent therein."

I know I can count on your full cooperation and support.

Construction Begins on Uniformed Services University of Health Sciences

The temperature was too hot and the President's hard hat was too small—but otherwise groundbreaking ceremonies on 10 July for the first building of the Uniformed Services University of the Health Sciences were flawless. The large audience gathered for the long-awaited event heard President Gerald R. Ford praise the new university as "a bold innovation, and true. . .to the best traditions of the Armed Forces."

The USUHS will be located on the grounds of the National Naval Medical Center, Bethesda, Maryland. Construction begins with a 170,000-square-foot basic science building scheduled for completion by the fall of 1976. Congress has authorized and approved $15 million for this first unit, which will hold classroom, laboratory, administrative, and student facilities. Some $64.9 million has been requested for FY 76 construction to construct a 345,000-square-foot second building holding a learning resources center, medical library, additional faculty offices, research and student teaching laboratories, and an animal holding area. A third phase, dedicated to faculty research, will be requested in FY 77 to complete the medical school.

Pending the construction of permanent facilities for the USUHS, the Medical Museum of the Armed Forces Institute of Pathology, at the Walter Reed Army Medical Center, Washington, D.C., has been converted into teaching laboratories and laboratory preparation and administrative space. Faculty administrative and research space is also being provided within the AFIP main building and at the Armed Forces Radiobiology Research Institute, while administrative offices for the University occupy leased space at 6917 Arlington Road, Bethesda, Maryland.

The charter class of 36 students will be admitted in 1976. Another 68 will be admitted in 1977, with 108 students entering in 1978 and 150 in 1979. The University is required by law to graduate a class of 100 medical students by 1982. Upon entrance to the University, students will be commissioned as officers in the Navy, Army, Air Force, or Public Health Service. Graduates are required to serve on active duty for no less than seven years after completion of training. According to Anthony R. Curreri, M.D., president of the USUHS, some 25% of physicians who take residency training in the service remain beyond their initial obligations, as opposed to less than 1% of physicians who enter the service fully trained. Early exposure to military medicine is considered important to retention. "I feel if a medical student is introduced to and educated in a military environment, that person will see the opportunities and rewards of pursuing a career in the Armed Forces," Dr. Curreri told the Senate Armed Services Military Construction Authorization Committee last spring.

The opportunities and challenges involved in creating such an institution are unparalleled in the annals of American health profession education. The creation of the University provides the opportunity for the military services to:

- Design and experiment with models of health delivery suited to their unique needs;
- Recruit and educate health professionals with a career commitment to the armed services;
- Develop graduate level programs in all areas of health delivery specialization required by the military services;
- Provide the University staff and environment necessary for coordinating basic and clinical science research programs;
- Develop and conduct continuing education programs to ensure that military health professionals have ready access to a planned program of lifelong professional education.

INTRODUCED IN 1945

The concept of a military medical school was first introduced by Congress in 1945 and subsequently reintroduced on many occasions. Its final passage as Public Law 92-426 in September 1972 was due to the determination and perseverance of Congressman F. Edward Hebert of Louisiana, who was a guest speaker at the groundbreaking ceremonies.

USUHS officials meet the press: (left to right) Dr. Curreri, Mr. Packard, Dr. Sanford.

Artist's conception of the Uniformed Services University of the Health Sciences.

The House and Senate Armed Services Committees were well aware of the fact that the creation of a medical school "de novo" is ordinarily a long and arduous process, requiring from five to ten years. Fortunately, many of the necessary resources are available in the greater Washington, D.C., metropolitan area, where there are military and Federal medical facilities whose full potential in contributing to an increased production of physicians has never been fully utilized. These existing resources include such renowned institutions as the National Naval Medical Center, Naval Medical Research Institute, Armed Forces Institute of Pathology, Armed Forces Radiobiology Research Institute, National Library of Medicine, National Institutes of Health, Walter Reed Army Institute of Research, Walter Reed Army Institute of Nursing, Walter Reed Army Medical Center, and Malcolm Grow U.S. Air Force Medical Center.

The USUHS is a separate agency of the Department of Defense, with a chain of command running directly from the Secretary of Defense through the Board of Regents to the USUHS president. This organizational structure will allow the University to function in a more autonomous manner with as little "red tape" as possible.

The faculty and the students are the most important components of the University and eventually determine its ultimate character. Since the faculty will be selected from both the civilian and military sectors, the University will provide military physicians with an opportunity to pursue a career in academic medicine and to gain professional recognition for outstanding performance and achievement. According to Dr. Curreri, lack

President Ford gets the USUHS off to a good start at groundbreaking ceremonies held 10 July 1975. The University is required by law to graduate a class of 100 students by 1982.

of such opportunities is a prime reason for physicians leaving the service.

SELECTION OF FACULTY

Based on experience gained at other universities, the Board of Regents agreed to develop the medical school faculty by selecting the dean first, followed by departmental chairpersons, and finally the departmental faculty. A dean's search committee composed of six nationally recognized health science administrators recommended, and the Board of Regents appointed, Jay Philip Sanford, M.D., professor of medicine at the University of Texas Southwestern University Medical School in Dallas, as dean of the Uniformed Services University Medical School. Several search committees and the dean are now reviewing prospective departmental chairpersons as well as faculty for the School of Medicine. All of the search committees will have military representation. With the outstanding military professionals already available within the Navy, Army, and Air Force medical departments, it is expected that the majority of the clinical faculty will be military while the majority of the basic science faculty will be civilian.

The president, dean, and departmental chairpersons of the University will be responsible for student education at all levels, and for the adequacy of clinical affairs and research. The Surgeons General of the military departments and medical center commanders will be responsible for hospital operations, and will provide support to assure adequate clinical experiences.

At the present time, the medical school plans to offer its students a four-year broad-based educational experience, according to traditional methods, which will enable graduates to meet any exigency arising throughout the world, as well as to enter specialty training. The first two years will

USUHS GROUNDBREAKING CEREMONIES 10 JULY 1975

President Gerald R. Ford

I feel greatly honored to have the opportunity of being here on this very historic day when the hopes of so many, for so many years, finally are coming to fruition.

I know from first-hand experience how long and how hard Eddie Hebert worked on this legislation in the House of Representatives. As he left the podium, he observed that the first year he introduced it I was a freshman in the House of Representatives, and that is a long time ago.

But Eddie, of course, would recognize first that many, many other Members of Congress joined with him and gave him the kind of support on both sides of the aisle and at both ends of the Capitol, and as a consequence, the joint Uniformed University of Health Sciences becomes a reality. And, of course, we recognize that many, many people in the medical profession likewise, even up to this date, have made significant contributions to this concept and to this facility.

I know that those who have worked so hard and so long must have a wonderful feeling to be here at this time for this groundbreaking, here in the shadow of some of the greatest medical facilities this country or any country has—the National Naval Medical Center here at Bethesda, the National Institutes of Health, the National Library of Medicine. This is a fitting part of the complex we have right in this area.

Now we have gathered here today to launch a new venture that will continue our long, long tradition of providing outstanding medical care to the men and women who wear our country's uniform. I was the beneficiary of it a long time ago in the Navy. I was as a Member of Congress, and I am today. And I can say without hesitation or qualification that the medical service for our people in uniform is the best, and I thank all of you for all of those who have been the beneficiaries.

Now, by bringing together men and women from the Army, the Navy, the Air Force, I think this new facility will perform another vital function. It will give members of the three Services—three proud and independent Services—the opportunity to work together for a common goal without forsaking their separate traditions. And they won't have to forsake, either, the distinctive personal identifications with the individual branches that they serve.

This University will encourage, in my judgment, cooperation between the Services with-

offer core courses in the basic sciences, followed by an innovative organ/system approach utilizing an interdisciplinary curriculum. It is also planned to expose the students to patient care and team health care starting in the first year.

Additionally, course material will be oriented so as to reintroduce "humanism" in medicine. The last two years will emphasize clinical experiences in direct patient care and will allow the student to gain expertise in primary care settings, specialty areas, and the large ambulatory comprehensive health care communities in the military. Students will also be encouraged to pursue family medicine as a postgraduate specialty, satisfying one of the most pressing needs of the military medical services.

Elective time will be offered the student in clinical and research facilities in the U.S. as well as in areas in the world where diseases rarely seen in this country are responsible for extreme morbidity and mortality. "Military physicians must be familiar with diseases that civilian physicians do not see," Dr. Sanford said, emphasizing that USUHS students will be prepared to serve as global physicians wherever military troops are assigned.

STUDENT ADMISSIONS

Prospective students for the School of Medicine must satisfactorily complete the Medical College Admission Test and have three years of college; however, four years of college and a baccalaureate degree are recommended. The faculty encourages applications from students with a diversity of backgrounds. Required as prerequisites are one full year (two semesters or three quarters) of each of the following subjects: English, general chemistry, organic chemistry, physics, general biology, and mathematics. Because of their increasing value in the understanding of human be-

---

out reducing their independence or their integrity. It is a bold innovation and true, in my judgment, to the best traditions of the Armed Forces.

I am here to say a few words and to participate in the groundbreaking to express my faith in what I believe will prove to be truly a great American undertaking, one that we can all be proud of, and one that will pay great human dividends in the form of outstanding health care for the men in our uniformed services as well as humanity on a global basis.

This is a proud day for the Army, the Navy and the Air Force, but I think equally important, a proud day for all the American people that they serve so well.

* * *

Secretary of Defense James R. Schlesinger

It was Robert Louis Stevenson who said, "There are men and classes of men that stand above the common herd, the Soldier, the Sailor, the Shepherd not infrequently, and the physician almost as a rule." I do not know what he meant by that equivocal word "almost," but it is certainly the case that the military physician earns all of the approval that Robert Louis Stevenson suggested.

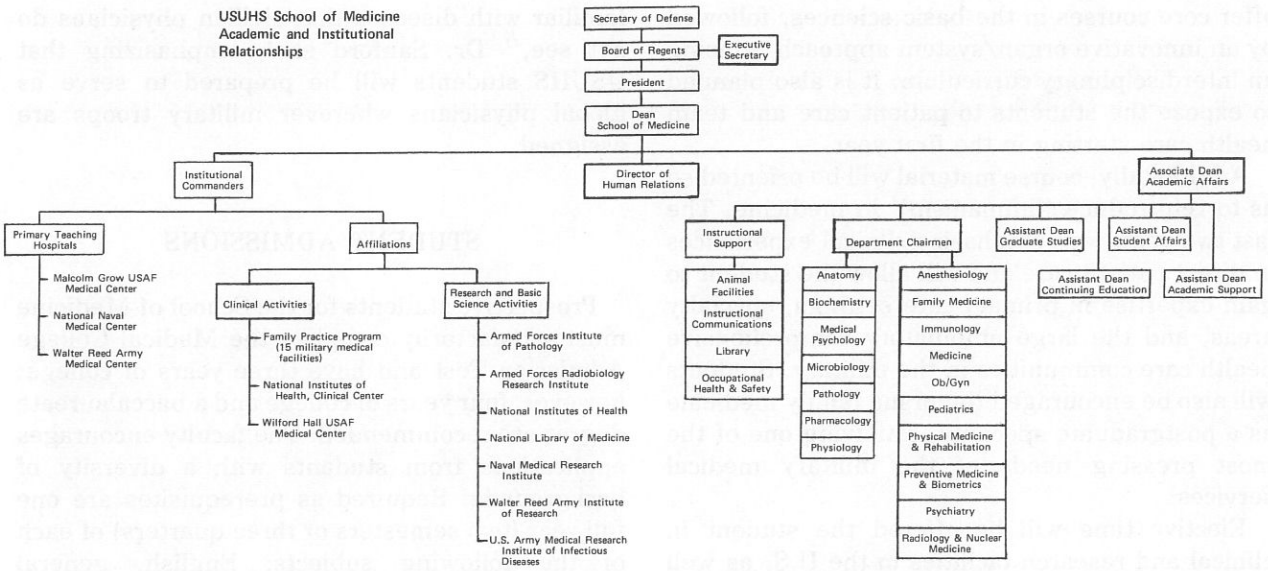
The military physician has been the pioneer in emergency medicine, tropical diseases, parasitology, and the adverse effects of hostile environments, be they high altitude, deep sea, or the tropics. To insure a continuation of the great contributions that can be forthcoming from military medicine to our society, there should be given to military medicine the opportunity to develop its fullest potential and its public prestige. That potential and prestige will be greatly enhanced through the developments of the Uniformed Services University of the Health Sciences.

To President Curreri, Mr. Packard, the Board of Regents, appointed by the President with advice and consent of the Senate, my congratulations on this occasion.

To the President of the United States, who just a few days ago, not far from here, stated that the overall survival of our nation depends in large measure on the health of its people, a particular note of thanks for demonstrating his support for military medicine by his presence here today.

And, to the men and women of the University, our fervent hope that where we break real ground today, they will break new ground tomorrow.

* * *



havior and activity, courses in the following subjects are strongly recommended: psychology, social sciences, history, literature, and art. The application process consists of the standard American Medical College Application Service form, three letters of recommendation from premedical faculty, and a personal statement describing the applicant's knowledge of and interest in a career as a medical officer in one of the uniformed services.

Students will be selected by procedures recommended by the Board of Regents and prescribed by the Secretary of Defense. The actual selection process will be carried out by a faculty committee on admissions and will be based upon an overall appraisal of the personal and intellectual characteristics of the candidates without regard to sex, race, religion, or national origin. The student must be a U.S. citizen. Inasmuch as the entering student will be a commissioned officer in one of the uniformed services, he or she must meet the physical and personal qualifications for such a commission and must give evidence of a strong commitment to serving the nation as a medical officer. A personal interview and complete medical examination will be required for applicants under final consideration.

Upon entering the first-year class of the School of Medicine the student will be a commissioned officer and will serve on active duty in the paygrade of a second lieutenant in the Army and Air Force, or ensign in the Navy and Public Health Service. The graduating medical student is required to serve on active duty for no less than seven years. A period of time spent in military internship or residency training is not creditable toward satisfying this seven-year obligation.

Further information about admission to the USUHS School of Medicine can be obtained from: Admissions Office, USUHS, 6917 Arlington Road, Bethesda, Maryland 20014.

With their tremendous experience in trauma, burns, infectious disease, tropical medicine, preventive medicine, environmental behavior, blood preservation, vascular surgery, and alcohol and drug abuse, the military medical departments have an extraordinary opportunity to become national leaders in these major areas. The military medical officer has not received adequate recognition for his productivity in the past, since he has not been able to relate to a university. He will now have that opportunity.

Military medicine has a great heritage which can be neither forgotten nor discarded. But what was appropriate in medical education and health care a decade ago may not be optimal today. The University has the potential to develop into one of the greatest health science universities in the world, providing there is open communication and cooperation between the three military medical departments, and confidence in one another. The true role of the University is to strengthen the military medical departments and their personnel to achieve the highest possible level of excellence. With the help of all, this noble goal can be attained.

Instrumentation in Medicine: Past, Present, Future

John Silva, Ph.D.

Engineering: **The art or science of using knowledge of the physical sciences in applying the materials and forces of nature to the well-being of mankind.**

Medicine: **The art or science of preserving or restoring human health.**

Always closely associated, the fields of medicine and engineering share a common goal: improving the health and well-being of mankind. Yet their approach to this goal has differed. From the beginning physicians have been concerned directly with their patients—healing the sick, treating wounds, performing surgery and, more recently, preventing disease. Engineers contributed to man's well-being by less direct means—by improving housing and food distribution, and providing the tools and materials essential to the convenience, comfort, transportation, and entertainment of man. Much of their early effort was expended on military machines and defenses. Even today many major engineering and scientific developments evolve as a direct result of military or defense activity.

Progress in engineering is generally easier to achieve than progress in medicine. Engineering is based upon studies of the repeatable physical relationships between measurable, quantifiable variables; once known, these variables can generally be subjected to rigid mathematical analysis, constructed into a physical model, and evaluated experimentally. In medicine, scientific progress does not come so easily.

Dr. Silva is biomedical program director at the Naval Electronics Laboratory Center, San Diego, California 92152.

The human system is a living, complicated, uncontrollable, uncooperative, changing, inconsistent machine, with relatively few independent variables that can be measured. The physician studying the living system faces many constraints and must avoid invasive and destructive techniques. Much of the information the physician needs he must acquire through indirect methods of measurement. The unending problems encountered while analyzing independent, self-regulatory systems, further complicated by emotional and psychological influences, offer fantastic and fascinating challenges.

Recently, engineers have discovered that much of the technology developed as indirect contributions to man has a more direct potential for improving health and well-being. At the same time, medicine has become increasingly aware that engineering can help solve many medical problems. Over the past 20 years, as a consequence of this mutual awareness, these two disciplines have sought common ground, until today we are experiencing what has been called the beginning of the age of biomedical engineering.

A good example of the benefits achieved by the marriage of medicine and engineering is the development of pacemakers to aid ailing hearts. The first artificial pacemaker was developed in 1932 by LCDR A.S. Hyman, MC, USNR, and was described in the *U.S. Naval Medical Bulletin* in 1935.* The device weighed 7.2 kilograms. A spring had to be wound every six minutes to keep the generator spinning. The needle electrode, which had positive and negative conductors close

*Hyman AS: Resuscitation of the stopped heart by intracardial therapy. IV. Further use of the artificial pacemaker. U.S. Naval Medical Bulletin 33(2):205-214, Apr 1935.

together on the same needle, was introduced into the right atrium. Although not designed for long-term application, this apparatus laid the foundation for the development of artificial pacemakers.

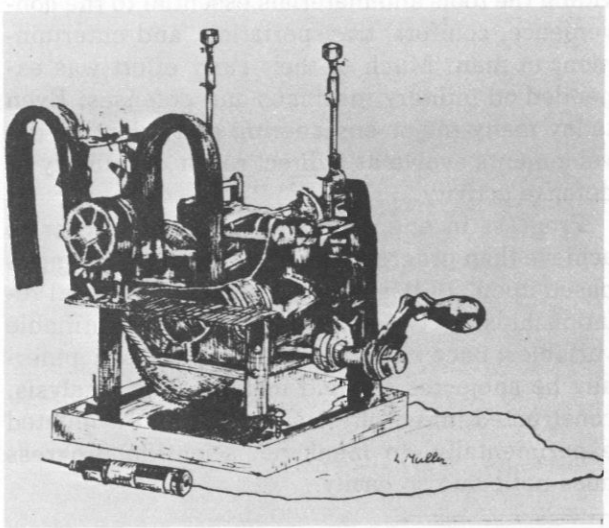
Today, conventional pacemakers are considerably smaller. They are implantable, use miniaturized circuitry, are powered by relatively small, conventional batteries, and deliver the pacing stimulus via electrodes directly attached to heart muscle tissue. But even this advanced instrument could stand some improvement. The failure and deterioration of electrodes and their leads a few months after being implanted in a moving tissue environment continues to be a problem. The size, weight, and operating life of the pacemaker is still limited by the power source. Very recently, nuclear-battery-powered pacemakers have become available, but this approach is still in the developmental stage.

Significant progress is also being made in developing instrumentation that uses noninvasive methods to obtain information from the cortex of the brain. Investigations carried out at the Naval Electronics Laboratory Center, San Diego, California, have shown that visually-evoked cortical potential measured with three standard skin contact electrodes is highly sensitive to the presence of pattern in a light stimulus. More specifically, it has been determined that particular components in the waveform of the evoked response are directly related to retinal functioning. This technique is valuable in the study and detection of retinal diseases and other conditions affecting visual acuity. The installation of a visual electrophysiological recording system at Naval Regional Medical Center San Diego has provided other benefits as well. Since evoked cortical responses are involuntary, it is possible to determine the visual acuity of unresponsive individuals and children too young to indicate what is, or is not, "in focus."

Recent research involving cortical response to sound stimulus suggests a technique that not only may be capable of generating hearing threshold profiles, but also has real potential for diagnosing neurological disorders related to hearing loss and other impairments. Certain brain signals, consisting of a train of electrical events evoked during the first ten milliseconds after the application of a sound stimulus, can be easily detected in adults and children, regardless of whether they are awake, asleep, or unconscious. If the technique fulfills expectations based on preliminary laboratory work, it could be used extensively to define requirements for safeguarding the hearing of personnel such as pilots and flight deck crews, who are necessarily exposed to high-level noise.

As is common in many fundamental investigations, standard laboratory equipment has been used to obtain and process the information needed for this work. Such a collection of laboratory instruments is bulky, heavy, and cumbersome, even when suitably mounted on racks. Furthermore, the instruments cannot perform certain functions in the needed scale ranges. The most practical way to use these techniques, then, is to develop instrumentation systems designed specifically to generate visual and acoustic stimuli and to record and process the appropriate responses evoked from the brain stem. Initial findings can be validated with this instrumentation and a quick, simple, accurate, reliable, and objective method can be provided to test the hearing and visual acuity of military personnel.

The application of ultrasonics to medicine represents one of the most promising new forms of noninvasive medical instrumentation. Ultrasonic radiation, used to visualize internal body structures and to diagnose conditions in the eye, brain, heart, and various organs of the abdomen, is already important as a diagnostic aid; it is also a valuable tool in the practice of obstetrics and gynecology. Much of the technology used in this work is a spin-off from the development of sonar systems at naval laboratories.

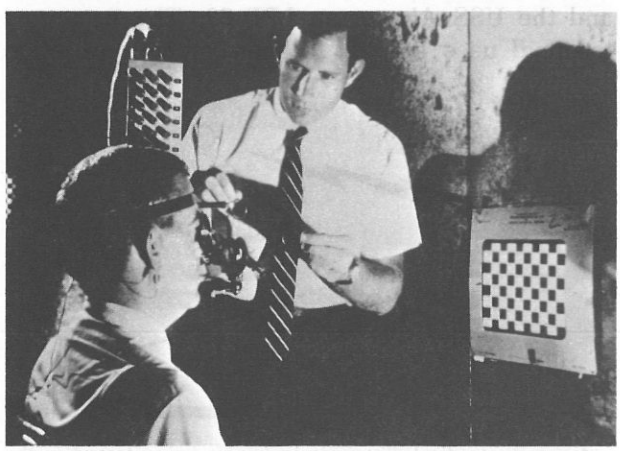


First artificial pacemaker, developed in 1932 by LCDR A.S. Hyman, MC, USNR.

The use of computers to enhance ultrasonic imaging by generating clearly recognizable echograms is also being explored. Computer algorithms have been developed to recognize and mark the anatomical boundaries of the heart, calculate ventricular dimensions, and measure dynamic parameters throughout the cardiac cycle. Ultrasonic instrumentation also has significant therapeutic, surgical, and dental applications. Methods have even been developed for the noninvasive disintegration of gallstones. And since this technology is still in its infancy and virtually unexploited, its potential for benefiting mankind is incredible. Recent advances in applying lasers, plasma jet, fiberoptics, scanning thermometry, liquid crystals, and magnetics to specific medical problems also show potential for adding to the growing collection of medical instrumentation.

From the technological accomplishments already achieved in the space program, computer science, electronics, and countless other forms of technical expertise, it is clear that we can eventually develop almost anything we now imagine in the technology of health care and medicine. This development depends mainly upon application of the knowledge and practical experience now accumulating so rapidly that we are often left in the dazed and confused state Alvin Toffler described as "future shock."

What is the prognosis for instrumentation in medicine? What are future requirements? One way to answer these questions, at least in terms of the immediate future, is to examine today's trends from technical, conceptual, and practical viewpoints.

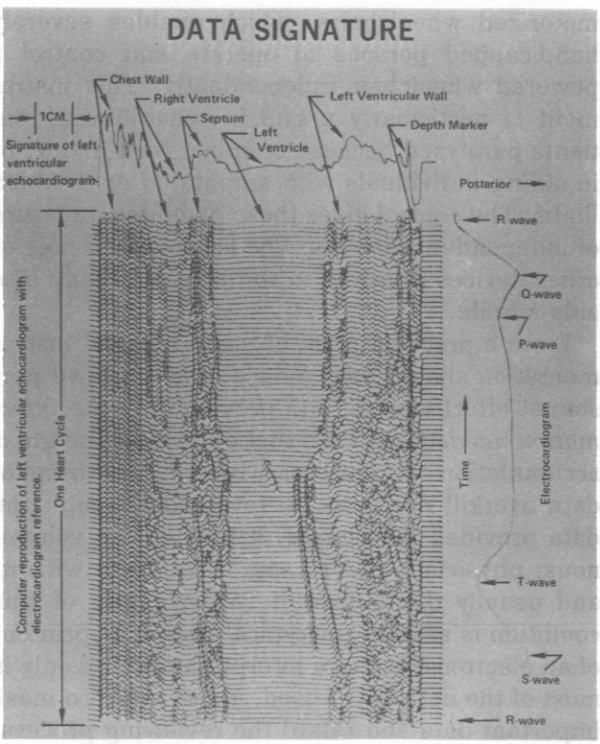


A visually evoked cortical response technique developed at the Naval Electronics Laboratory Center is used to determine visual acuity, and to study and detect retinal diseases.

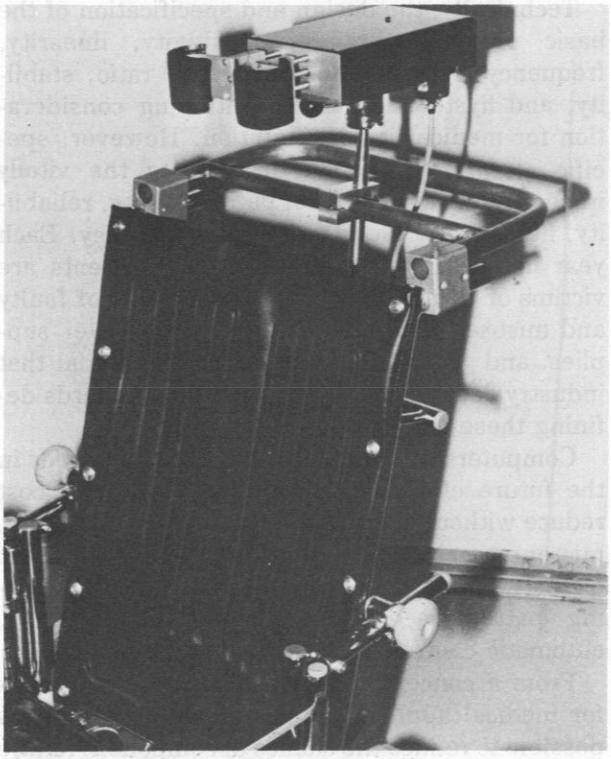
Technically, the design and specification of the basic properties—range, sensitivity, linearity, frequency response, signal to noise ratio, stability, and hysteresis—are a continuing consideration for medical instrumentation. However, specific attention must be directed to the vitally important requirements of patient safety, reliability, human interface factors, and accuracy. Each year in the United States over 500 patients are victims of electrical accidents as a result of faulty and misused equipment, inadequate power supplies, and grounding systems. It is essential that industry develop and adopt realistic standards defining these characteristics.

Computers will certainly play important roles in the future of medicine. As their size and cost reduce without significantly sacrificing capability, microprocessing systems will have a major impact on instrumentation design for information gathering, pattern recognition, diagnosis, monitoring, automatic control, and self-test functions.

From a conceptual point of view, instruments for medical applications should be as simple as possible to reduce the chance of component failure and human error. A good example of such simplicity is the proportional headrest control for



Computer-enhanced ultrasonic imaging is used in the generation of clearer echocardiograms and the measurement of dynamic cardiometric parameters.



This proportional headrest control permits quadraplegic patients to operate a powered wheelchair.

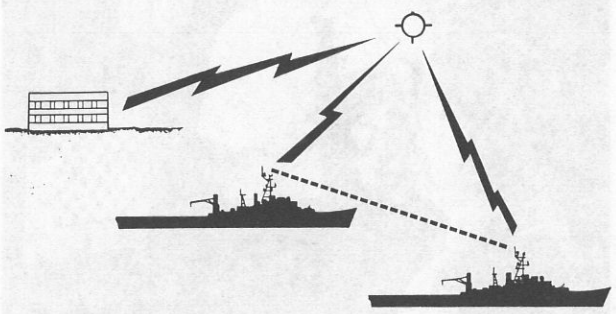
motorized wheelchairs, which enables severely handicapped persons to operate and control a powered wheelchair independently. This instrument is particularly useful in rehabilitating patients paralyzed because of spinal cord injury, or in aiding individuals with amputated or disabled limbs. The control gives these patients a measure of independent mobility. The lack of electrodes or other devices attached to the patient's body also aids morale.

From a practical point of view, medical instrumentation should help reduce cost, improve personnel effectiveness, and provide *only the information needed* in a form that eliminates the gross accumulation of unnecessary records. The trend of data overkill needs to be reversed. Though the data provided is accurate, it is often too voluminous: physicians don't know what to do with it, and usually don't need it. An example of this condition is seen in the typical computer printout of an electrocardiogram interpretation; not only is most of the data never used, it also tends to mask important data and retard the reviewing process. Instrumentation must be designed to be practical, not technically impressive, and must provide the physician with only useful information.

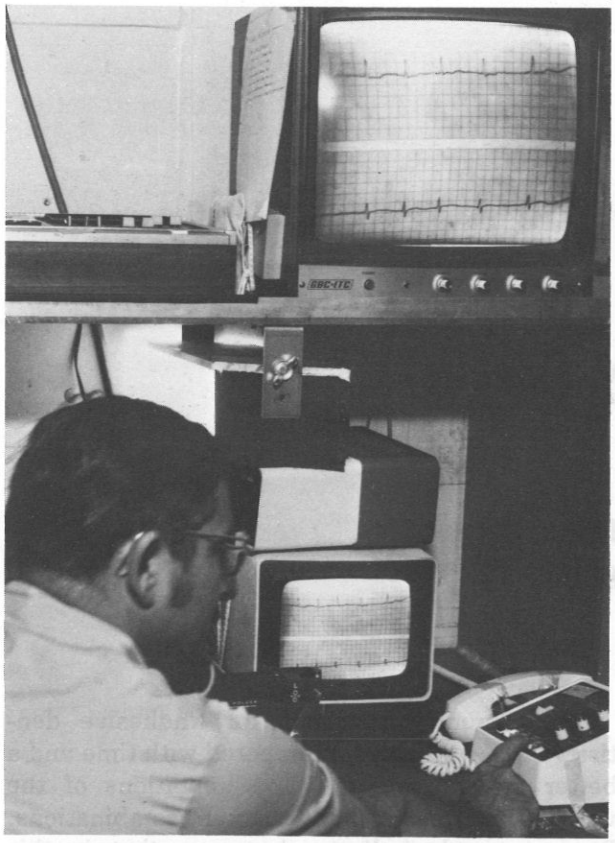
Effective medical instrumentation will meet many needs, including giving medical professionals direct access to computer terminals, shifting more responsibility to paramedical personnel, determining the full extent of the hazards to personnel subjected to high-intensity electromagnetic radiation and noise, and delivering adequate health care despite the shortage of physicians.

This last problem is not unique to but is most obvious in the Navy. The health care of naval personnel aboard deployed vessels is obviously a vital responsibility. However, a study of injuries and ailments occurring aboard ships indicates that on many vessels the skills and training of a physician are seldom needed, and that, except for medical contingencies, corpsmen can provide adequate medical care. One way to alleviate the shortage of physicians, therefore, is to use corpsmen aboard most ships, providing them with the diagnostic skills of medical specialists located at remote sites. Patients who require treatment or surgery that the corpsmen cannot provide could be transported by helicopter to a larger vessel or shore-based facility where medical specialists are available. This practice is common even when a physician is on board if medical problems occur at sea that justify this action.

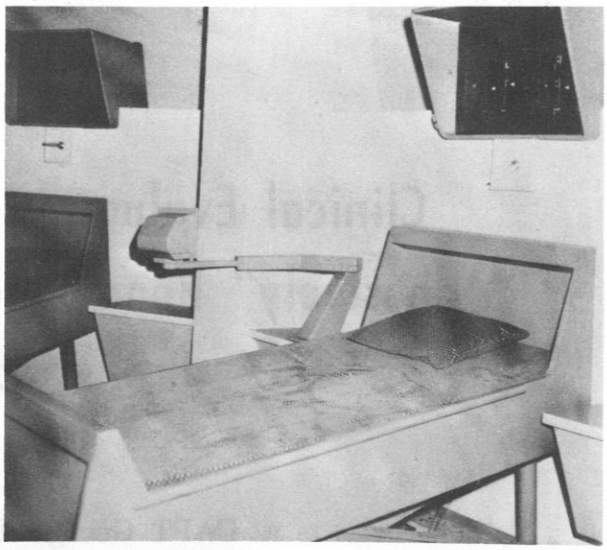
Although ship-to-ship and ship-to-shore communications available for medical data transfer are narrow band channels, information in various forms (including slow scan television) can be effectively exchanged using little more than existing shipboard equipment. The practicality and effectiveness of remote medical diagnosis is now being tested in the USS *Juneau*, an LPD-10, and the USS *Alamo*, an LPD-33. The prototype terminal uses a high frequency communication



A remote medical diagnosis system is being tested in the USS *Juneau*, USS *Alamo*, and at NRMC San Diego. The system will provide for medical consultation and the transfer of medical data from ship to ship, and ship to shore.



From the sick bay of the USS *Juneau*, HMC M.L. Gilpin transmits an electrocardiogram to the NRMC San Diego emergency room using the prototype remote medical diagnosis system.



Some day sick bays may be equipped with specially designed beds in which patients are scanned by sensors while physiological data is displayed on a diagnostic panel.

link with NRMC San Diego. Ultimately, the use of communication via satellite for remote diagnosis will be evaluated.

The concept of remote diagnosis is not new, its feasibility and effectiveness having already been demonstrated to varying degrees. Eskimo villagers in remote areas of Alaska have benefited from the services of Alaskan physicians located at hospitals and medical centers through use of a half-duplex voice communication link. Electrocardiogram tracings have been transmitted successfully from remote Alaskan villages to the University of Washington Hospital in Seattle via high-frequency radio and the ATS-1 satellite.

How about the distant future? It may be worthwhile to reflect on what we can expect by, say, the 23rd Century. This choice of time is not arbitrary, since I plan to borrow from the creative thoughts of Gene Roddenberry, producer of the television series "Star Trek," to look 300 years into the future.

In this series the Star Ship USS *Enterprise*, a spaceship the size of a naval cruiser, has a five-year mission of exploring the galaxy, going "where no man has gone before." Representing centuries of naval tradition, the captain and his staff of officers control the ship from a bridge which contains an incredibly advanced array of communications, sensor, navigation, and weapons instrumentation. Personnel and equipment are "beamed" from the ship to remote locations and returned. Patients in the sick bay are continually scanned by sensors; nothing is attached to the patient. A constant physiological record of every function and activity within the body is obtained and displayed on a diagnostic panel above each bed for review by the doctor or nurse. There are instruments for performing noninvasive surgery, etc. . . .

Some people may think this is not a realistic way to look into the future, but those of us who remember the futuristic ideas of the old "Flash Gordon" cartoon series will look at these concepts more seriously.

But here we are, physicians and engineers of today, better equipped than we have ever been to deal with our problems and the promise of the future. Technological progress offers us many possibilities, both good and bad. The application of this technology is up to us. Working together, we physicians and engineers must define our goals and strive to achieve them.

Clinical Evaluation of an Acrylic Pontic "Adhesively" Bonded to Uncut Abutment Teeth: Preliminary Results

CAPT George T. Eden, DC, USN
CDR Max B. Daughtry, DC, USN

In 1955, Buonocore described a successful acid etch technique which promoted the bonding of dental resins to human enamel (*1*). A modification of this technique, used in conjunction with the dimethacrylate monomer (Bis-GMA) developed by Bowen (*2*), has important applications to clinical dentistry:

1) "Adhesive"* anterior restoratives, combining the superior aesthetic and physical properties of Bis-GMA composite resins with the tenacious bond produced through the acid etch technique, permit reconstruction of fractured anterior teeth in one sitting, often without anesthesia (*3,4*).

2) Orthodontic banding is accomplished effectively with simple appliances "adhesively" bonded directly to one enamel surface of the tooth, in place of the traditional and time-consuming banding technique which employs appliances that encircle the coronal portion of the tooth and are held in place with zinc phosphate cement (*5*).

The current enthusiasm for "adhesive dentistry" will probably be tempered with time and a better understanding of the limitations of the various polymer-etchant-enamel combinations. Present trends indicate, however, that in this decade adhesive procedures will be used extensively, both properly and improperly.

A potentially useful technique reported by Ibsen (*6*) and Portnoy (*7*), and described in greater detail by a dental manufacturer (*8*), advocates the use of a composite Bis-GMA resin** to adhesively bond a single acrylic pontic directly to natural abutment teeth which have suitable unrestored and caries-free proximal surfaces. The resulting "bridge" can be constructed entirely at chairside with no laboratory support other than a selection of acrylic resin stock denture teeth; its use is suggested in place of transitional removable partial dentures ("flippers"). However, since the durability of these bridges in intraoral service has not been reported, a dentist cannot logically rank this procedure among accepted alternatives for prosthetic treatment.

Extensive experience at the Naval Submarine Medical Research Laboratory with both sealants

CAPT Eden is head of the Dental Research Branch, Naval Submarine Medical Research Laboratory, Naval Submarine Base New London, Groton, Connecticut 06340. CDR Daughtry is prosthetics officer at the Branch Dental Facility Submarine Base New London, Naval Regional Dental Center, Newport, Rhode Island 02840.

The authors gratefully acknowledge the assistance of the staff of the Branch Dental Facility Submarine Base New London. This clinical study was conducted in a climate of active, interested cooperation between clinic and laboratory personnel.

*The American Dental Association accepts the term *adhesion* only where the bonding mechanism places no reliance on mechanical interlocking effects. However, the popular meaning of *adhesion* and *adhesive* is used in this paper.

**Restodent, Lee Pharmaceuticals, South El Monte, California.

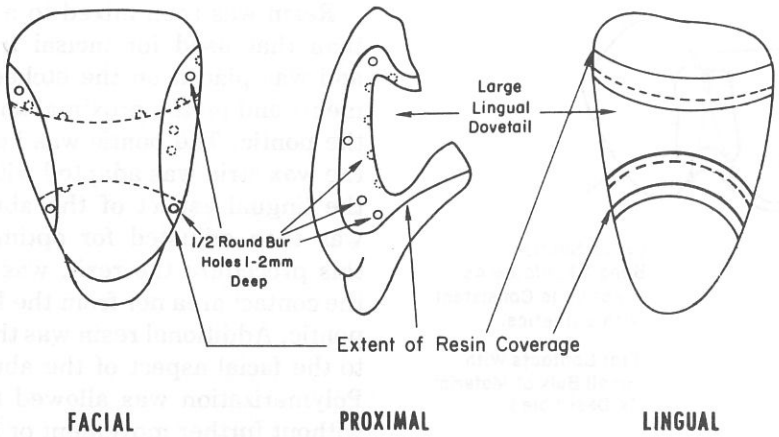


FIGURE 1. Pontic preparation.

(*9*) and adhesive anterior restoratives led us to consider the adhesively bonded pontic as a logical application of the materials involved. If its use were indicated for the significant number of Navy dentists who do not have laboratory support, the technique would be an important extension of prosthetic services.

METHODS AND MATERIALS

Subjects for this investigation were selected from patients with unsatisfactory flipper partial dentures, patients with inflammation of the gingiva or palate (or both) as a result of their own misuse of such dentures, and patients scheduled for full arch extractions who, because of earlier extractions, could no longer use their previous partial dentures. Also included were a few patients with no previous prosthetic experience who agreed to participate in the study after being informed of the alternatives, and on the understanding that the success rate of this clinical study had not yet been determined.

Conventional fixed bridgework was not a practical alternative at this facility because of constant excessive demand for that service. No immediate replacements were made. All but one of the bridges were placed in mouths where healing had taken place for at least six weeks.

Two patient sittings were involved. At the first sitting the occlusal relationships of the teeth were evaluated, an alginate impression made, and a shade selected for the pontic.* During the interval between sittings the chosen stock pontic was adjusted using the cast obtained from the alginate impression. (We assume that most dental operatories are equipped with the materials used to prepare diagnostic casts for treatment planning. If these materials are not available, the procedure may be completed at the initial sitting by adjusting the chosen pontic in the mouth.)

At the second sitting the pontic was checked in the mouth for shade, form, and possible final adjustment. The pontic was further reduced incisally and gingivally on its proximal aspects to allow a greater bulk of resin in the contact area. A deep dovetail was cut mesiodistally in the lingual aspect of the pontic to create space for a continuous bar of resin from one abutment to the other in the completed bridge (Figure 1). The pontic was then scrubbed with isopropyl alcohol to remove debris and adherent organic material. During the cleaning and all subsequent steps the pontic was held by the incisal portion so that the area of intended contact with the resin was never touched. The abutment teeth were cleaned with flour of pumice and rinsed. The teeth were isolated with gauze, etched for two minutes with a gel type proprietary etchant,** and washed for 30 seconds. The etched areas included the proximal surfaces and a small portion of the adjacent facial and lingual surfaces. Then the gauze was replaced and the teeth thoroughly dried for at least 30 seconds with clean, dry air, avoiding any salivary contamination, to achieve a characteristic chalky white appearance. A flattened strip of utility wax was pressed to the lingual surface of the tooth next to the distal abutment for later use.

---

*Trubite Bioblend, Dentsply International, York, Pennsylvania.

**Restodent

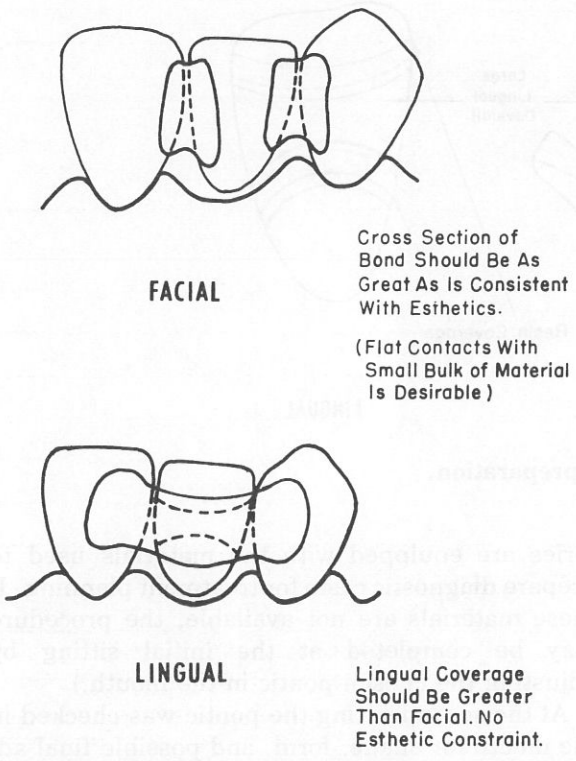


FIGURE 2. Diagrammatic view of completed bridge.

Resin was then mixed to a consistency thinner than that used for incisal fracture restorations, and was placed on the etched areas of the abutments and on the proximal and lingual portions of the pontic. The pontic was held in position while the wax strip was adapted with finger pressure to the lingual aspect of the abutments; the pontic was then adjusted for optimal position. During this procedure the resin was not displaced from the contact area nor from the lingual groove in the pontic. Additional resin was then added as desired to the facial aspect of the abutments and pontic. Polymerization was allowed to go to completion without further movement or stress application in order to achieve the greatest possible strength in the adhesive joint. The set of the resin was determined from observing the set of excess material on the mixing pad. In no case was the bridge disturbed in less than five minutes. A diagram of the completed bridge is shown in Figure 2.

Pontic contacts with opposing teeth were absolutely cleared in centric occlusion. Occlusion was also cleared in excursive movements, except that excursive contacts were not reduced to the point where an unacceptable aesthetic result occurred; instead, a balance was reached between functional and aesthetic requirements.

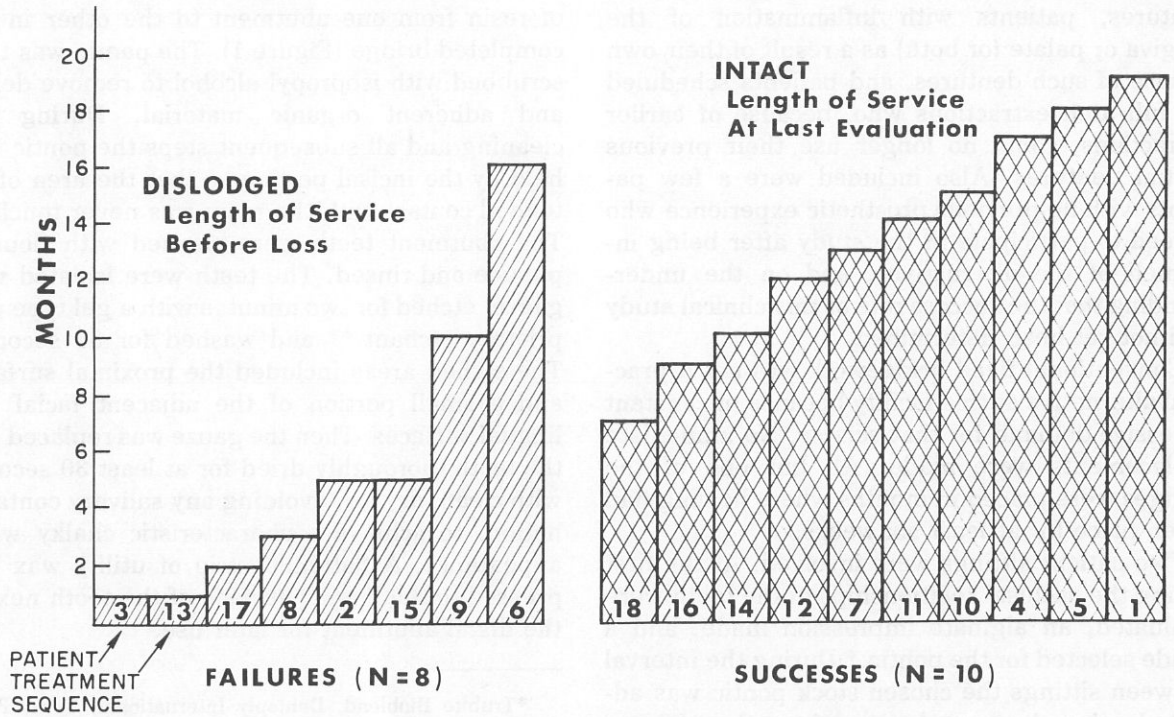


FIGURE 3. Retention data for adhesive bridges.

TABLE 1. Results of Individual Adhesive Bridges

Subject*	Missing Tooth	Placement Date of Adhesive Bridge	Failure Date	Intact Date	Length of Service in Months	
					Failure**	Intact†
1	7	Apr 73		Nov 74		19
2	Not recorded	Apr 73	Sept 73		5	
3	8	May 73	June 73		1	
4	8	May 73		Nov 74		17
5	8	May 73		Dec 74		18
6	10	May 73	Sept 74		16	
7	10	Jun 73		Aug 74		13
8	10	Jun 73	Sept 73		3	
9	10	Aug 73	July 74		10	
10	26	Aug 73		Nov 74		15
11	24	Oct 73		Dec 74		14
12	10	Dec 73		Dec 74		12
13	8	Dec 73	Jan 74		1	
14	7	Jan 74		Nov 74		10
15	10	Jan 74	June 74		5	
16	9	Feb 74		Nov 74		9
17	8	Mar 74	May 74		2	
18	7	Apr 74		Nov 74		7

*Six subjects lost to study:
3 upper central incisors
2 upper lateral incisors
1 lower central incisor

**Mean: 5.4 months; median: 4.0 months
†Mean: 13.4 months; median: 13.5 months

Contouring was accomplished with a flame-shaped diamond point, followed by sandpaper discs. DEDECO* midget tan proximal finishing points provided a convenient, acceptable final surface.

RESULTS

Twenty-four adhesive bridges were placed over a 13-month period from March 1973 to April 1974. Only central and lateral incisors were replaced. Eighteen subjects have been reexamined or contacted by telephone. Six subjects have apparently been lost to the study.

As of May 1975, 10 of the 18 bridges were still in place and were functioning normally (Figure 3). The mean duration of service for the intact bridges was 13.4 months, with a range of 7 months to 19 months. Eight bridges were dislodged. The mean duration of service before loss was 5.4 months, with a range of 1 month to 16 months (Table 1).

Five subjects were transferred following placement of their adhesive bridges; these patients were evaluated at their new duty stations by 14 Navy dentists not associated with this study. The dentists responded to a questionnaire we sent them, although not every examiner responded to

*Dental Development and Manufacturing Company, 653 Washington Avenue, Brooklyn, New York.

every question. Three of these five subjects had intact bridges at the time of examination.

On an absolute basis, and not comparing the bridges to other prostheses, eight of the dentists rated the bridges as having superior aesthetic characteristics, four rated them as satisfactory, and none rated them as unsatisfactory. Two dentists did not respond. In describing the physiologic result (gingival health, oral hygiene, and effect on abutments) 12 dentists rated adhesive bridges as superior to flipper partial dentures, without reservation; the bridges were also considered superior to cast framework partial dentures, but with unstated qualifications in some instances. Again two dentists did not respond. After having evaluated an intact adhesive bridge, 12 dentists stated that they would use the described technique. Two dentists did not respond. All 14 dentists reported using the acid etch technique in one form or another for adhesive type bridges or other adhesive anterior restorations.

These independent evaluations agreed in substance with our own assessment of adhesive bridges, drawn from reexaminations of the other subjects. Our reexaminations also showed that dislodged bridges did not fail at the interface between etched enamel and resin, but instead failed at the interface between pontic and resin (Figure 4).

Subjects with intact bridges who had previously worn other prostheses were enthusiastic in their acceptance of the adhesive bridges. They primarily appreciated the hygienic convenience and excellent aesthetics of the bridges, and the fact that no denture base material or cast metal interferred with the tongue.

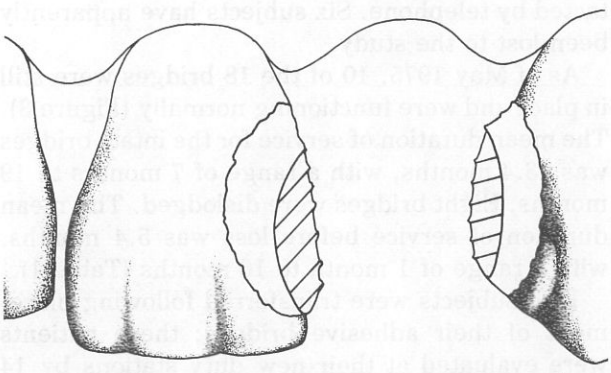


FIGURE 4. Adhesive bridge failure occurs at resin-pontic interface (note retained resin on abutment teeth).

DISCUSSION

The results reported here indicate that the adhesive bridge should be considered as an extremely valuable *interim* treatment measure. This technique should be particularly attractive to the military dentist who must frequently operate without laboratory support. However the failure rate we experienced in this study clearly demonstrates that not all adhesive bridges will last indefinitely. The advantages of patient acceptance, minimal tissue contact, ease of construction, and excellent aesthetics inherent in this prosthesis are offset to a considerable degree by the uncertain service life of the restoration (33% of the restorations were lost in five months or less, and 44% were lost at the time of evaluation).

We have attempted to place this potentially useful new technique in a sensible perspective by documenting our results with 18 subjects. Prior reports in the literature are confined to descriptions of individual cases without documentation of intraoral performance with time; these reports do not comment on acknowledged failures by other operators. Dental trade scientists have described to us other failures, the overall pattern of which was consistent with our results.

Although a multitude of clinical variables existed in different degrees for each subject, three variables appeared to have the greatest effect on the probability of success:

1) The inciso-gingival length of the abutment teeth, which limits the area of both the tooth and the pontic that can be wetted by the resin. The greater the wetted area, the greater the probability for success.

2) The width of the space to be filled. The narrower the span, the greater the probability for success. In fact, this treatment measure is best limited to single tooth replacement.

3) Occlusal stress transmitted to the pontic. The probability of success is increased by minimizing the biting stresses borne by the pontic through careful clearing of the occlusion in all excursions.

These three variables are obviously interrelated. Increased span and exposure to strong biting forces can be somewhat compensated for by increasing the cross-section of the adhesive joint, thereby increasing the joint's strength. It is interesting to note in this context that the one bruxist in the study dislodged the pontic replacing tooth #8 in less than one month.

Because of the unique character of each patient, tolerance limits for success obviously cannot be defined; however, the factors described above should help identify those cases where success might be expected and those where the technique is logically contraindicated. For example, a long span where the abutment teeth are short inciso-gingivally, offering little area for adhesion, would not be a sensible case for an adhesive bridge.

Since all observed failures occurred at the interface between the pontic and the Bis-GMA resin, an improvement in the strength of this interface should materially improve the success rate for the technique.

It is unlikely that effective chemical crosslinking can occur between the high molecular weight, highly crosslinked, heat-cured, polymethyl methacrylate pontic and the viscous Bis-GMA resin. Because of the relatively large size of the Bis-GMA molecule, it is also unlikely that freshly mixed Bis-GMA resin effectively penetrates the surface of the pontic. However, a methacrylate polymer with lower molecular weight, inherently lower viscosity, and much smaller molecular size would, when applied as a "tie coat" to the pontic, presumably penetrate the outer surface of the pontic and polymerize in an interlocking fashion with the pontic's nonreactive polymer chains, forming a strong mechanical bond. Finally, crosslinking freshly mixed Bis-GMA resin to a still unset "tie coat" should complete a physically improved joint, better able to withstand dislodging forces.

We are now evaluating a modification of our original technique. The new method incorporates a "tie coat," and was developed when bench testing of the prototype system indicated that the pontic-resin interface was significantly strengthened by first wetting the pontic with methylmethacrylate monomer and then covering the monomer film with an *unfilled* (i.e., with no silane-treated inorganic phase) Bis-GMA resin.* Filled resin (Restodent) is placed on the abutment teeth and the "tie coated" portion of the pontic, and the pontic is then positioned for initial set.

*Enamel Bond 3M Company, 3M Center, St. Paul, Minnesota.

SUMMARY

Eighteen "adhesive bridges," replacing central or lateral incisors, were evaluated over a period of up to 19 months to document the intraoral performance of this new prosthesis.

The results from this preliminary study indicated that adhesive bridges offer advantages in patient acceptance, ease of construction, minimal tissue contact, and aesthetics, and are particularly valuable for military dentists without ready laboratory support. However these advantages were offset by uncertainties about the service life of the restoration. Because of these uncertainties, we recommend that adhesive bridges be used only for the *interim* replacement of single anterior teeth.

Reexaminations showed that dislodged bridges failed at the interface between the pontic and resin, suggesting that the addition of an effective "tie coat" between the resin and the pontic would improve the success rate for this technique. A modification of the reported technique, incorporating such a "tie coat," is currently being evaluated.

REFERENCES

1. Buonocore MG: Simple method of increasing the adhesion of acrylic filling materials to enamel surfaces. J Dent Res 34:849-853, 1955.

2. Bowen RL: Dental filling material comprising vinylsilane treated fused silica and a binder consisting of the reaction product of bisphenol and glycidal acrylate. *U.S. Patent 3,006,112,* 27 Nov 1962.

3. Oppenheim MN, Ward GT: The restoration of fractured incisors using a pit and fissure resin and composite material. J Am Dent Assoc 89:365-368, August 1974.

4. Buonocore MG, Davila J: Restoration of fractured anterior teeth with ultraviolet-light-polymerized bonding materials: a new technique. J Am Dent Assoc 86:1349-1354, June 1973.

5. Cohen M, Silverman E: Indirect bonded practice. J Clin Orthodontics 8(7):384-405, July 1974.

6. Ibsen RL: One appointment technique using an adhesive composite. Dent Survey 49(2):30-32, Feb 1973.

7. Portnoy LL: Constructing a composite pontic in a single visit. Dent Survey 49(8):20-23, Aug 1973.

8. "Use of Restodent dental restorative in fixed bridge prostheses as a long-term 'temporary space maintainer'." *Lee Pharmaceuticals Technical Bulletin No. 9090-1,* 20 Apr 1973.

9. Eden GT, Mazzarella MA: Clinical evaluation of an adhesive sealant in naval personnel: one year results. Naval Submarine Medical Research Laboratory Report No. 792, 20 Aug 1974.

BUMED WINS SAFETY AWARD

The Secretary of the Navy named BUMED recipient of the 1974 Major Command Award for achievement in safety ashore. This award recognizes BUMED's outstanding accomplishments in safety program development over the past four years. Notable achievements include: assignment of 16 full-time safety managers to Medical Department activities; obligation of funds specifically to correct safety and occupational health deficiencies; institution of safety management training courses for collateral duty safety officers; issuance of BUMED instructions addressing safety policy; publication of a revised chapter to Safety Precautions for Shore Activities (NAVMAT P-5100) directing mandatory precautions and procedures for patient safety; establishment of a cooperative education program with Indiana State University, providing BUMED with the services of junior and senior safety management students; and institution of safety workshops.

NURSE CORPS ASSIGNMENT POLICY

Recent inquiries indicate that there is some misunderstanding among both individuals and commands about the policy of reassigning married Nurse Corps officers to be with their spouse. Medical Department policy in this area is in accord with current BUPERS policy as set forth in BUPERS instructions and the BUPERS Manual. A forthcoming BUMED Talking Paper will clarify the assignment policy for Nurse Corps officers.

PATIENT INFORMATION QUESTIONNAIRES

NRMC San Diego has developed a questionnaire to distribute to all patients on their discharge from the hospital. The information derived helps the command identify and strengthen weak points, and support strong points. This innovative approach to evaluating hospital performance could be readily adapted for use in other naval medical facilities, possibly for outpatients as well as inpatients.

COs of naval regional medical centers and naval hospitals are encouraged to explore possible use of this type of information gathering device in their commands. Contact the CO, NRMC San Diego, California 92134, for further information.

FLEXIBLE DENTAL UNITS PLANNED

For FY 74 and subsequent years most dental equipment submissions for new shore facilities, ship construction, and alteration projects call for chair-mounted dental units or tray-delivered control modules. This equipment offers a variety of installation options, often using existing plumbing. Dental operatories with this type of equipment, ashore and afloat, can be converted to right- or left-hand operation in a matter of hours.

GREASE-GUN TYPE INJURIES

High-pressure hydraulic systems and other systems using fluid under high pressure can produce the type of injury sometimes incurred by personnel who operate grease guns or paint sprayers powered by high-pressure air. Any injury in which the injection of any material under high pressure is suspected (other than immunization injections administered by mass-immunization guns) should be dealt with as a grease-gun type injury in accordance with BUMEDINST 6260.2D of 29 May 1975.

SEWAGE CONTAMINATION ABOARD SHIP

Alternative systems to the traditional over-the-side disposal of shipboard sewage have caused concern regarding health in case of malfunction and resultant contamination. Contaminated spaces may be disinfected with a germicidal and fungicidal concentrate disinfectant (phenolic, dry-type) NSN 6840-00-753-4797, or with a

betadine solution, NSN 6505-00-754-0374. Directions provided on the label of the disinfectant should be carefully followed. Navy environmental and preventive medicine units or preventive medicine services of naval regional medical centers will assist ships with inspections, cultures, and recommendations to minimize threats to the health of the ship's crew.

AMHTS CONTRACT AWARDED

The American Health Corporation of New York has been awarded the contract for the Navy's first automated multiphasic health testing system (AMHTS). The prototype system is scheduled to be installed at NNMC in June 1976.

COMING IN OCTOBER: OCCUPATIONAL HEALTH WORKSHOP

The 18th Navy Occupational Health Workshop will be held 6-10 October 1975 at the Royal Inn Hotel at the Wharf, San Diego, California. The workshop is designed for physicians, nurses, industrial hygienists, medical safety officers, program managers, and others involved in federal occupational health programs. For further information contact: Navy Environmental Health Center, 3333 Vine Street, Cincinnati, Ohio 45520. Phone: (Area Code 513) 684-3863.

SAFETY WORKSHOP SCHEDULED

A safety workshop (western section) is scheduled for 4-6 November 1975 at the Sheraton Hotel, Los Angeles Airport, California, to identify, discuss, and resolve problems which impede the development of safety programs within the Medical Department. Specific topics for discussion include: correction of safety and occupational health deficiencies; safety investigations and analyses of incidents, injuries, and accidents; and establishment and achievement of safety objectives.

Collateral duty safety officers, safety managers, nursing supervisors, industrial hygienists, and others having safety program responsibilities are encouraged to attend. For more information contact: Code 139, NRMC Long Beach, California 90801. Autovon: 873-9376; Commercial: (Area Code 213) 420-5376. Requests for accommodations at the Sheraton Hotel must be received at NRMC Long Beach (Code 139) no later than 15 October.

HOSPITAL INFECTION CONTROL NEWSLETTER

Hospital Infection Control, a monthly newsletter devoted exclusively to the control of in-hospital infections, is an excellent addition to the professional libraries of naval hospitals. Subscription rate is $60 per year. For further information contact: Leslie C. Norris, M.D., Ph.D., Hospital Infection Control, 1800 Peachtree Center, 230 Peachtree Street NW, Atlanta, Georgia 30303.

TRAINING FILM: "HAVE YOU HEARD?"

"Have You Heard?" (MN-11260), a new Navy training film, describes the hazards of high intensity noise found in military and industrial environments. Noise pollution has been recognized as a major health hazard, and can lead to progressive and permanent hearing loss. This film shows the effect hearing impairment can have on work and family relationships, illustrates the pathology of occupational hearing loss, and discusses various noise control measures. Also discussed are measures that individuals themselves may take to prevent loss of hearing acuity resulting from exposure to injurious noise levels.

It is recommended that Medical Department personnel include this training film in the motivational and educational hearing conservation program support provided to commands.

Experience and Current Concepts in the Treatment of Congenital Dislocation of the Hips at NRMC San Diego

CDR Alvin H. Crawford, MC, USN
LCDR J. Anthony Herring, MC, USNR

The treatment of congenital dislocation of the hip has changed in recent years. The variables in treatment, particularly with reference to age (*1,8,22*), preliminary traction (*7*), closed reduction (*4,7,13,20*), open reduction, above or below open reduction (*6,12*), adductor release (*19*), open adductor tenotomy versus closed percutaneous adductor tenotomy, iliopsoas release (*6,19*), innominate osteotomy (*17,19*), femoral osteotomy (*2*), and arthrography (*14*), all represent different philosophical approaches to the basic disease. As a result of the experience one of us had as an Orthopedic Research and Education Foundation Fellow, as well as our experience with our existing clinical population, we have attempted to formulate a protocol for our approach to the problem.

MATERIALS AND METHODS

This is a preliminary report on the 31 patients admitted to the Naval Regional Medical Center San Diego from January 1971 to June 1974 for treatment of congenital dislocation of the hip. Complete archive records were available for 25 of these patients.

The patients included 29 females and 2 males. Ages ranged from six weeks to 15 years, with 18 of the patients less than six months old. Twenty-three patients were white, four American Indian, one black, one Guamanian, one Spanish, and one Filipino. Six patients were the product of breech deliveries, four of which involved the left hip and two the right hip. Another four patients had bilateral congenitally dislocated hips.

Fifteen of these patients were initially treated at other medical facilities, and were referred to us for further management. Sixteen presented to us for initial treatment.

Because response to treatment and possible complications differ according to a patient's age, we placed these patients in one of four groups:

Group I: Newborn to 6 weeks
Group II: 6 weeks to 12 months
Group III: 12 months to 3 years
Group IV: 3 years and older

This grouping allowed us to standardize treatment somewhat, although we continued to treat each case on its own merits. The grouping also served as a means of quality control, and may be useful in carrying out further research. Most orthopedic communities tend to group these patients, but no prior standard grouping has been presented.

CDR Crawford is officer-in-charge of the Pediatric Orthopedic Service, NRMC San Diego, California 92134.

Dr. Herring, formerly a member of the staff of NRMC San Diego, is now with the Scottish Rite Hospital for Crippled Children, Dallas, Texas 75219.

Group I: Newborn to 6 weeks

There were five patients in this group: four were placed in splintage or traction; only one was treated initially in a cast. We believe that the dislocations of this group of patients will reduce if the patients are placed in flexion and maintained in a flexible device such as the Pavlick stirrup (our preference) or Freijka pillow.

Group II: 6 weeks to 12 months

There were 15 patients in this group. With the exception of those patients initially treated elsewhere, all of these children were placed in traction until the 0 to plus 1 station described by Gage and Winter (*7*) was achieved; we then performed an adductor tenotomy, arthrogram, and a closed reduction. Finally, we applied a Mau trumpet cast (*12*) in the human position, extended to include the feet; the foot portion could be removed after six weeks to permit the knee to move and to allow for the patient's growth while maintaining flexion and abduction of the hips. We believe that prompt treatment of this group of patients is important to correct the soft tissue contractures and adductor tightness that develop when a hip has been dislocated for such a period of time.

Five of the seven patients initially treated elsewhere developed avascular necrosis. All seven patients were placed immediately in a cast with 90° of flexion and 90° of abduction; only one patient underwent preliminary traction, and none had an adductor tenotomy (Table 1). Three patients had received triple-diaper treatment from their pediatricians before their initial orthopedic evaluation.

Group III: 12 months to 3 years

There were eight patients in this group, all of whom were walking despite a dislocated hip. Five of these patients had undergone a total of ten surgical procedures: three open reductions, two varus derotation osteotomies, and five innominate osteotomies. Avascular necrosis was not found in any of the other three patients, who had not been previously treated for congenital dislocation of the hip.

Group IV: 3 years and older

The three patients in this group had all undergone previous treatment, including two closed reductions and one derotation osteotomy. All had experienced some degree of vascular insult to the femoral head; all subsequently underwent Chiarri osteotomies and today, some two and one-half to four years after the operation, are free of pain and have an improved range of motion.

ARTHROGRAM

We performed arthrograms on 26 of the 31 patients. Three patients showed the so-called "inverted" limbus; one patient showed a flattened femoral head at four months of age. A one-view arthrogram was taken of the patients in Groups I and II at the time the adductor tenotomy and closed reduction were performed. A formal nine-view arthrographic study was done on patients over the age of 12 months. Although the arthrograms taken of the patients in Groups I and II did not increase our diagnostic acuity, they en-

TABLE 1. Group II Patients Initially Treated Elsewhere

PATIENT'S INITIALS	AGE	TRACTION	ADDUCTOR RELEASE	AVASCULAR NECROSIS
B.F.	4 mos.	Negative	Negative	Positive
F.H.	2 mos.	Negative	Negative	Positive
K.R.	1½ mos.	Negative	Negative	Positive
J.S.	6 mos.	Negative	Negative	Positive
A.M.	4 mos.	Positive	Negative	Positive
D.G.	Newborn	Negative	Negative	Negative
E.C.	1½ mos.	Negative	Negative	Negative

abled us to identify the position of the hip in plaster. The arthrogram was an invaluable aid in caring for those patients who developed avascular necrosis that showed either absence of or a very small ossific nucleus.

Two complications of arthrography occurred. In one vasospastic episode a patient's legs became cold and blue for approximately five minutes. A nearby vascular surgeon recommended local heating with blankets, and the problem was subsequently resolved. Another patient suffered a gram positive staphylococcus sepsis secondary to contamination of the jugular venipuncture site. This sepsis resolved with antibiotics and did not affect the child's hip joint or any area other than the site of jugular venipuncture.

DISLOCATION VERSUS SUBLUXATION

One patient presented from the newborn nursery with dislocation of the femoral head. This child had initially been placed in triple diapers by her pediatrician. When the patient was seen again by her pediatrician at six weeks of age, X-ray studies were done and she was referred to us. We saw the patient when she was three months old. In the interim, she had been treated with triple diapers. When we superimposed her X-ray studies done at six weeks and twelve weeks of age, they tended to reflect the efficacy of treatment with triple diapers.

Another two patients referred from the newborn nursery underwent X-ray examination in the nursery because of hip clicks. These initial X-ray studies were negative, and the children were treated with triple diapers. X-ray studies done when the patients were three months old revealed complete dislocation of the hip.

Some patients may present with a windblown deformity of the hips and feet—abduction of one hip and adduction of the opposite hip—in which the hip is not dislocated but is tight in adduction. This hip should be watched, and treated with splinting if abduction is 15° less than the opposite side (*8*). Any hip suspected of being dislocated or subluxated should be treated by splintage, not with triple diapers.

CURRENT CONCEPTS

In April 1973, NRMC San Diego entered a new era in the treatment of congenital dislocation of the hip by establishing a plan to diagnose and treat all suspicious hips in the newborn nursery (*1,3,5,8,15,23,24*).

Group I. All newborns are examined in the newborn nursery by the pediatric orthopedic residents. Patients who are noted to have a frankly dislocated hip are started immediately with the Pavlick harness. Patients whose hips are considered suspicious because of a click or posterolateral instability are given return appointments to the Orthopedic Clinic in three weeks. If the click and instability persist in three weeks, the patients are treated with a Pavlick harness and followed until the ossific nuclei become visible and there is no notable X-ray difference or instability to clinical testing.

If the posterolateral instability has resolved and there is no click at the three-week follow-up, the patients return for X-rays in six months, at which time the ossific nuclei should be apparent or the acetabular indexes should be the same.

Group II. Those patients who are diagnosed after six weeks as having congenital dislocation of the hip are admitted to the hospital for traction (usually split Russell's traction). Using only X-ray evaluation, increased incremental skin traction is applied until the patients approach the zero to one stage described by Gage and Winter. No repeated attempts are made to reduce the hip while the patient is in traction because this practice has been found to cause an increase in the incidence of avascular necrosis in some cases (*7*). Once the Shenton's line appears equal on X-ray examination, the patient is taken to the operating room for a percutaneous adductor tenotomy, followed by an arthrogram and closed reduction. The human position advocated by Salter is obtained (*7*). We believe that flexion is the most important aspect of the postreduction position (*16,19*).

Groups III and IV. If there has been no prior treatment, patients in these groups are treated initially exactly as are patients in Group II with traction, adductor release, and casting. If the patient has been previously treated with no reduction occurring, we believe that some surgical procedure should be considered, and a plan of treatment worked out with the parents. We do make an initial attempt at relocating the hip; if the results are satisfactory with closed reduction, the child is followed for at least one year with dynamic and static splinting as required.

The problem comes in determining the response to treatment. We continue to be distressed

by our inability to predict acetabular response. The oblique acetabulum greater than 30° in a child older than 18 months is a particular problem. If there is some visual response such as supra-acetabular periosteal calcification during the first three to six months of treatment, we have been encouraged to follow the patient. However, our arthrograms have not enabled us to make any more accurate prediction of response based on the controversial thorn sign or acetabular cartilaginous precursor. We have seen patients over 18 months of age who had the cartilaginous precursor yet failed to develop a sufficient bony acetabulum (*21*).

We believe that patients more than 18 months old whose acetabular obliquity is greater than 30° and who have been reduced concentrically for greater than one year can be treated conservatively by containment through use of an innominate osteotomy (Salter, Pemberton, Chiarri) or femoral varus osteotomy (MacEwen, Chuinard). We prefer these procedures to continued X-ray observation, or informing parents of only the "possible need for surgery."

Since the initiation of our early diagnosis and treatment program in 1973, only 2 of the 3,854 babies born at NRMC San Diego have later presented with hip dislocations. Although both of these patients were noted to have a click at birth, their hips could not be dislocated. The parents were told to bring the patients back to our clinic in three weeks. However, one patient developed pneumonia and cardiac difficulties and was hospitalized in the intensive care unit of another hospital. The other patient was not brought in for the three-week examination. These children were both seen later in our clinic; they have been treated, and their hips have relocated and appear to be progressing satisfactorily.

All patients in this series were treated by one of us, and therefore have been followed for less than four years. No patient initially treated by us has developed avascular necrosis. One patient has a so-called "Type I deformity" (*7,19*).

CONCLUSIONS

1) *Treatment of infants is mandatory.* The best results are obtained when patients are treated before they are six weeks old. Also at this age the tight hip, with limitation of abduction, is just as capricious and in jeopardy as the totally unstable hip.

2) *Triple diapers are not adequate treatment.* Loose hips that tighten when treated with triple diapers probably would tighten without *any* treatment, as do 90% of newborn loose hips. We prefer that the mother stretch the child's hips when diapers are changed. If we feel the child's hip is unstable, we prefer to use the Pavlick harness.

3) *Arthrograms are important for secondary treatment.* Arthrograms are especially beneficial when the ossific nuclei cannot be seen or are only partially visible secondary to avascular necrosis.

4) *Traction and adductor tenotomy is necessary* in the treatment of congenital hip dislocation in patients older than six weeks.

5) Surgery was usually required in patients who were 12 to 18 months old when initially treated. All patients who failed to show adequate acetabular response after one year of treatment underwent some form of containment procedure, such as innominate osteotomy of Salter, Chiarri osteotomy, or varus derotation femoral osteotomy.

REFERENCES

1. Barlow TG: Early diagnosis and treatment of congenital dislocation of the hip. J Bone Joint Surg [Br] 44B(2):292-301, 1962.

2. Chuinard EG: Varus-producing and derotation subtrochanteric osteotomy in the treatment of congenital dislocation of the hip. J Bone Joint Surg [Am] 45A(7):1397-1408, 1963.

3. Coleman SS: Congenital hip dysplasia and sequelae. Quarterly Bulletin, Northwestern University Medical School 36:222, Fall 1962.

4. Conrad MB: Congenital dislocation of the hip. Children's Orthopedics. Instructional Course Lectures 18:207-217, St Louis: C.V. Mosby Co., 1961.

5. Erlacher PJ: Early treatment of dysplasia of the hip. J International College of Surgeons 38(4):348-353.

6. Ferguson AB: Primary open reduction of congenital dislocation of the hip using a median adductor approach. J Bone Joint Surg [Am] 55A(4):671-688, 1973.

7. Gage, JR, Winter RB: Angular necrosis of the capital femoral epiphysis as a complication of closed reduction of congenital dislocation of the hip. J Bone Joint Surg [Am] 54A(2):373, 1972.

8. Harris LE, et al: Early diagnosis of congenital dysplasia and congenital dislocation of the hip. JAMA 173(3):229-233, 1960.

9. Hummer C, MacEwen GD: The coexistence of torticollis and congenital dysplasia of the hip. J Bone Joint Surg [Am] 54A(6):1255-1256, 1972.

10. Ilfeld FW: The management of congenital dislocation and dysplasia of the hip by means of a special splint. J Bone Joint Surg [Am] 39A(1):99-110, 1957.

11. MacKenzie IG: Congenital dislocation of the hip. J Bone Joint Surg [Br] 54B(1):18-38, 1972.

12. Mau H, et al: Open reduction of congenital dislocation of the hip by Ludloff's method. J Bone Joint Surg [Am] 53A(7):1281-1288, 1971.

13. McCarroll HR: Symposium—congenital subluxation and dislocation of the hip in infancy—an instructional course lecture. J Bone Joint Surg [Am] 47A(3):589-600, 1965.

14. Mitchell GP: Arthrography in congenital displacement of the hip. J Bone Joint Surg [Br] 45B(1):88-95, 1963.

15. Mitchell GP: Problems in the early diagnosis and management of congenital dislocation of the hip. J Bone Joint Surg [Br] 54B(1):4-12, 1972.

16. Nicholson JT, et al: Regional stress angiography of the hip. J Bone Joint Surg [Am] 36A(3):503-510, 1954.

17. Pemberton PA: Pericapsular osteotomy of the ilium for treatment of congenital subluxation and dislocation of the hip. J Bone Joint Surg [Am] 47A(1):65-86, 1965.

18. Petrie JG: Congenital dislocation of the hip in infancy—an instructional course lecture AAOS. J Bone Joint Surg [Am] 47A(3):607-611, 1965.

19. Salter RB, et al: Avascular necrosis of the femoral head as a complication of treatment for congenital dislocation of the hip in young children—a clinical and experimental investigation. Can J Surg 12:44-61, 1969.

20. Schottstaedt ER: Treatment of congenital dislocation of the hip in infancy—an instructional course lecture AAOS. J Bone Joint Surg [Am] 47A(3):602-606, 1965.

21. Schwartz DR: Acetabular development after reduction of congenital dislocation of the hip. J Bone Joint Surg [Am] 47A(4):705-714, 1965.

22. Von Rosen S: Diagnosis and treatment of congenital dislocation of the hip in the newborn. J Bone Joint Surg [Br] 44B(2):284-291, 1962.

23. Wilkinson IA: A post-natal survey of congenital displacement of the hip. J Bone Joint Surg [Br] 54B(1):40-48, 1972.

24. Williamson J: Difficulties of early diagnosis and treatment of congenital dislocation of the hip in Northern Ireland. J Bone Joint Surg [Br] 54B(1):13-17, 1972.

BELLY BOARD AWARD TO CAPT COCHRAN

Good things happen when you win the Belly Board Award. Look at CDR Robert C. Cochran (MC). He received the annual award on 27 June 1975 for outstanding contributions to the development of Navy gastroenterology, and three days later he was CAPT Cochran.

Long-time Belly Board watchers report that Dr. Cochran was honored for the caliber of his surgical technique, his exceptional clinical and teaching ability, and his seasoned judgment in difficult cases.

CDR R.B. Johnson (MC), head of the Gastroenterology Branch at the National Naval Medical Center, congratulates CDR (now CAPT) R.C. Cochran (MC), 1975 Belly Board Award winner. Mrs. Cochran holds the award.

SCHOLARS' SCUTTLEBUTT

HEALTH PROFESSIONS SCHOLARSHIP STUDENT COMMUNICATIONS

The interchange of information between subsidy program directors and the student population is inadequate. Complicating factors include geographical separation of the students and the apparent absence of a central contact for authoritative professional guidance.

A primary concern for all naval scholars is their graduate medical education. "What are the military primary care programs like?" "Will I be able to specialize in the area of my choice?" "I want to serve as a general medical officer for a time, but can I be locked into such a billet?" "Can I be forced to be a general medical officer if I am a specialist?" "What are the chances of getting into a particular internship or residency?" "Can I register the fact that I might prefer civilian training though I am required to apply for the Navy first?" These questions are often a topic of conversation among scholarship students, and are the subject of misinformation and rumor.

The Health Sciences Education and Training Command Subsidy Division (Code 14) is the link between the Navy Medical Department and scholarship students, and manages the fiscal and personnel administration aspects of the subsidy program. While these functions are assumed courteously and efficiently, the officers at HSETC Code 14 are not the best qualified to answer our queries about professional or specialty development.

The retention of students after they complete their minimum obligation will depend in part on the quality of professional guidance at the undergraduate medical level. Since subsidy students are truly entering the Navy medical education system, the Navy Medical Department must be, in a sense, their dean in professional matters.

It is suggested that a knowledgeable medical officer be available for authoritative, specific information with regard to graduate medical education and active-duty service aims. While some general areas of concern may be explained in the "Scholar's Scuttlebutt" section of *U.S. Navy Medicine*, other topics are more suited to direct dialogue. The execution of this service would entail a designated officer being available for telephone or personal contact during specific hours. The function might be placed with the HSETC Medical Programs Division (Code 4), with a specific phone number assigned to ensure easy communication.

Poor exchange of information and lack of understanding exists in other areas. Reimbursements often cause confusion. For example, some students are not aware that laboratory coats have been made reimbursable by a Department of Defense directive of 4 February 1975. Claims for this item were nonallowable before that date. Other students do not discover that CIBA series books are not allowable until *after* they make a purchase. Still others are concerned that reimbursements take longer to be processed in the Navy than they do in the other military services. (The Navy accounting system avoids error by employing a triple review, not required by the Army and Air Force.) If information about reimbursables and reimbursement procedures were more clearly communicated, such confusion and misunderstanding might be eliminated.

A proposal for a fixed-rate book allowance, to be issued at the beginning of the academic year, warrants consideration. Reimbursement claims would then be unnecessary. The policy would relieve the HSETC Subsidy Division (Code 14) of much work, but would require a change in the wording of Public Law 92-426 which authorizes our subsidy program. Even if it were judged desirable by the Department of Defense, such

change could not be implemented quickly. The fixed book allowance would allow program directors and students more time to devote to professional matters by freeing them of tedious paperwork required for reimbursements.

A third problem that can be traced to poor communication or lack of information concerns the newly commissioned scholarship student who must wait for his or her first period of active duty to receive a general orientation to Navy life and to naval medicine in particular. In many instances academic schedules do not permit an active duty for training clerkship after the freshman year, and a student with an unfavorable schedule may complete medical school without first-hand knowledge of military medical practice. Ill-informed graduates may make poor decisions about graduate medical education and perpetuate misconceptions about operational medicine.

One solution to this problem is for all students to conscientiously pursue clerkship opportunities. Those who do not have summers available may take elective time (often available during the senior year) for such training. The clerkship could be both a general military orientation and a recognized academic experience.

For the student not yet able to take a clerkship, a general orientation kit might be useful; it should include general information on graduate medical education, explicit instructions on reimbursement procedures, and reporting to active duty for training. Information about active-duty benefits such as use of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), commissary and exchange privileges, and automobile and life insurance should be included. The orientation kit would give the inactive Reserve student a perspective of the responsibilities and privileges of a naval medical officer.

Another proposed way to disseminate information is through an organization of naval scholars. For further details, see *U.S. Navy Medicine*, August 1975.—ENS Samuel A. Forman, MC, USNR.

DR. JEAN TODD COMMISSIONED AS NAVY CAPTAIN

The first woman physician to enter the Medical Department as a direct appointment captain was commissioned 29 July 1975 at the Navy Recruiting Command Headquarters, Arlington, Virginia.

CAPT Jean E. Todd, MC, USNR, a Board-certified pathologist, was born in Great Britain, became a citizen of the United States, and received her B.A. and M.A. degrees from Cambridge University in England. She earned her medical degree in 1953 from the McGill University Medical School, Montreal, Quebec, Canada. While attending McGill, Dr. Todd received the Campbell Howard Prize for clinical medicine and was made a member of the Alpha Omega Alpha Honorary Medical Society.

CAPT Todd will join the staff of the Pathology Department, NRMC Portsmouth, Virginia. Prior to entering the Navy, she held the following appointments: professor of pathology and surgery, and director of surgical pathology, West Virginia University Medical Center; senior consultant in surgical pathology, National Cancer Institute, National Institutes of Health; director of surgical pathology, associate professor of surgery and pathology, and associate attending pathologist, New York Hospital, Cornell Medical College.

CAPT Jean E. Todd, MC, USNR, receives the collar devices of her rank from RADM Robert B. McClinton, commander, Navy Recruiting Command, following her appointment as the first woman physician to enter the Navy as a direct appointment captain.

Semiannual Roster
1 July 1975

The following is a list of staff medical officers of major fleets and forces, district medical officers, commanding officers, executive officers, directors of administrative services, directors of clinical services, chief nurses of Medical Department activities, division surgeons of Marine divisions, Marine aircraft wings and Marine brigades. (For information purposes only.)

CINCPACFLT/CINCPAC	RADM R.G.W. WILLIAMS, JR., MC, USN (ADDU)
CINCPACFLT	AO CAPT J. WOLF, MSC, USN
CINCLANT/CINCLANTFLT/SACLANT	RADM P.O. GEIB, MC, USN
CINCLANTFLT	AO CAPT C.O. WIMBERLY, MSC, USN
SACLANT	AO CDR J.I. MYERS, MSC, USN
CINCUSNAVEUR	CAPT L.T. YORK, MC, USN (ADDU)
COMNAVFOR JAPAN	CAPT G.E. GORSUCH, MC, USN (ADDU)
COMNAVLOGISTICS	RADM R.G.W. WILLIAMS, JR., MC, USN
	AO CDR H.E. DANIEL, MSC, USN
COMNAVAIRPAC	CAPT R.H. REICHARDT, MC, USN
	AO LCDR R.G. MC CURRY, MSC, USN
COMSUBPAC	CDR J.E. OSBORNE, MC, USN
COMNAVAIRLANT	CAPT R.J. SEELEY, MC, USN
CNET (NAS, PENSACOLA, FL)	RADM R.D. NAUMAN, MC, USN (ADDU)
	AO CAPT R.L. GILL, MSC, USN (ADDU)
CNATECHTRA (NAS, MEMPHIS, TN)	CAPT G.W. MATTHEWS, JR., MC, USN (ADDU)
	AO LT W.F. BENEDICT, MSC, USN (ADDU)
CNAT (NAS, CORPUS CHRISTI, TX)	CAPT J.R. LUKAS, MC, USN (ADDU)
COMNAVSURFLANT	CAPT D.T. LANSINGER, MC, USN
COMNAVSURFPAC	CAPT N.E. WENGER, MC, USN
	AO LCDR B.L. OZMENT, MSC, USN

FIRST NAVAL DISTRICT	DMO CAPT R.J. CALES, MC, USN (ADDU) AO LCDR R.E. SMITH, MSC, USN
NAVREGMEDCLINIC, PORTSMOUTH, NH	CO LCDR M.L. COOPER, MSC, USN XO LCDR E.J. SCHLEGEL, MSC, USN SR NURSE CDR M. CROCKETT, NC, USN
NAVREGMEDCEN, NEWPORT, RI	CO CAPT R.J. CALES, MC, USN DCS CDR W.L. WILLIAMS, MC, USN DAS LCDR F. RICHARDSON, MSC, USN CH NURSE CAPT L. ROBINSON, NC, USN
THIRD NAVAL DISTRICT	DMO CAPT V.A. BURKHART, MC, USN (ADDU) AO LCDR J.R. MULVEY, MSC, USN (ADDU)
NAVAL SUBMARINE MEDICAL CENTER, NEW LONDON, CT	CO CAPT V.A. BURKHART, MC, USN DCS CAPT R.J. TRETTEL, MC, USN DAS CAPT B.A. MC KAY, NC, USN CH NURSE CDR H. FITZGERALD, NC, USN
NAVAL SUBMARINE MEDICAL RESEARCH LABORATORY, GROTON, CT	CO CDR R.L. SPHAR, JR., MC, USN
FOURTH NAVAL DISTRICT	DMO RADM R.L. BAKER, MC, USN (ADDU)
NAVREGMEDCEN, PHILADELPHIA, PA	CO RADM R.L. BAKER, MC, USN DCS CAPT R.L. MULLIN, MC, USN DAS CAPT H.S. RUDOLPH, MSC, USN CH NURSE CAPT A. FOLEY, NC, USN
NAVAL MEDICAL MATERIEL SUPPORT COMMAND, PHILADELPHIA, PA	CO CDR O. STALLINGS, MSC, USN
FIFTH NAVAL DISTRICT	DMO RADM W.J. JACOBY, JR., MC, USN (ADDU) AO LCDR R.M. CURRAN, MSC, USN (ADDU)
NAVREGMEDCEN, PORTSMOUTH, VA	CO RADM W.J. JACOBY, JR., MC, USN DCS CAPT D.C. GOOD, MC, USN DAS CDR G.W. MILLARD, MSC, USN ASST DIR HCA LCDR L.H. TURBIVILLE, MSC, USN CH NURSE CAPT M.P. BRENNAN, NC, USN
NAVAL OPHTHALMIC SUPPORT & TRAINING ACTIVITY, WILLIAMSBURG, VA	CO CAPT M.J. TESTA, MSC, USN XO CDR J.G. WILCOX, MSC, USN
NAVHOSP, CHERRY POINT, NC	CO CAPT M.G. WEBB, MC, USN DAS LCDR R. HURDER, MSC, USN CH NURSE CDR B.E. ZIGOVSKY, NC, USN
NAVREGMEDCEN, CAMP LEJEUNE, NC	CO CAPT T. RICHTER, MC, USN DCS CAPT V.L. STOTKA, MC, USN DAS CDR W.E. WHITLOCK, MSC, USN CH NURSE CAPT T. PROTO, NC, USN
NAVAL ENVIRONMENTAL & PREVENTIVE MEDICINE UNIT NO. 2, NORFOLK, VA	OIC CAPT W.J. BROWNLOW, JR., MC, USN (ADDU) AO LT J.M. MOODY, MSC, USN
NAVAL MEDICAL FIELD RESEARCH LABORATORY, CAMP LEJEUNE, NC	CO CAPT E.J. CLARKE, JR., MC, USN AO LCDR M.L. MARTIN, MSC, USN

SIXTH NAVAL DISTRICT	DMO CAPT E.B. MC MAHON, MC, USN (ADDU) AO LCDR R.K. GREEN, MSC, USN (ADDU)
NAVREGMEDCEN, CHARLESTON, SC	CO CAPT E.B. MC MAHON, MC, USN DCS CAPT C.H. LOWERY, MC, USN DAS CDR E.E. FOWLER, MSC, USN CH NURSE CAPT R. PAMPUSH, NC, USN
NAVHOSP, BEAUFORT, SC	CO CAPT C.W. BRAMLETT, MC, USN DCS CAPT W.R. MULLINS, MC, USN DAS CDR C.A. MC FEE, MSC, USN CH NURSE CAPT M. MAYNARD, NC, USN
NAVREGMEDCEN, JACKSONVILLE, FL	CO CAPT J.T. HORGAN, MC, USN DCS CAPT J.L. HUGHES, MC, USN DAS CDR H.P. MILLER, MSC, USN CH NURSE CAPT P.S. HEIMBERGER, NC, USN
NAVHOSP, KEY WEST, FL	CO CAPT W.M. PHILLIPS, MC, USN DAS CDR J.E. HOWARD, MSC, USN CH NURSE CAPT C. FINN, NC, USN
NAVREGMEDCEN, MEMPHIS, MILLINGTON, TN	CO CAPT R.M. LEHMAN, JR., MC, USN DCS CAPT G.C. BINGHAM, MC, USN DAS CDR S.D. BARKER, MSC, USN CH NURSE CAPT H.I. FURMANCHIK, NC, USN
NAVREGMEDCEN, ORLANDO, FL	CO CAPT A.L. POWELL III, MC, USN DCS CAPT N.S. NUREDINI, MC, USN DAS CDR J.L. GRAVES, MSC, USN CH NURSE CAPT J.M. REDGATE, NC, USN
NAVAL AEROSPACE & REGIONAL MEDICAL CENTER, PENSACOLA, FL	CO RADM R.D. NAUMAN, MC, USN DCS CAPT P.C. GREGG, MC, USN DAS CAPT R.L. GILL, MSC, USN CH NURSE CAPT R. HALVERSON, NC, USN
NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY, PENSACOLA, FL	CO CAPT N.W. ALLEBACH, MC, USN XO CDR T.F. LEVANDOWSKI, MSC, USN (ADDU)
NAVAL AEROSPACE MEDICAL INSTITUTE, PENSACOLA, FL	CO CAPT H.S. TROSTLE, MC, USN XO CDR T.F. LEVANDOWSKI, MSC, USN
NAVAL DISEASE VECTOR ECOLOGY & CONTROL CENTER, JACKSONVILLE, FL	OIC CAPT W.B. HULL, MSC, USN AO LT R.R. COTE, MSC, USN
EIGHTH NAVAL DISTRICT	DMO CAPT W.T. LINEBERRY, MC, USN (ADDU) AO CDR D.E. TAPSCOTT, MSC, USN
NAVREGMEDCEN, CORPUS CHRISTI, TX	CO CAPT J.R. LUKAS, MC, USN DCS CAPT G.B. HART, MC, USN DAS CDR G.W. BALDAUF, MSC, USN CH NURSE CAPT M. DONOGHUE, NC, USN
NINTH NAVAL DISTRICT	DMO CAPT A.C. WILSON, MC, USN (ADDU) AO LT H. YATES, MSC, USN
NAVREGMEDCEN, GREAT LAKES, IL	CO CAPT A.C. WILSON, MC, USN DCS CAPT R.C. ELLIOTT, MC, USN DAS CDR J.J. DEVANE, MSC, USN CH NURSE CAPT E.M. PFEFFER, NC, USN

NAVAL HOSPITAL CORPS SCHOOL, GREAT LAKES, IL	CO CDR V.A. SWINDALL, MSC, USN XO LCDR F. BRIAND, MSC, USN SR NURSE CAPT M.R. PERLOW, NC, USN
TENTH NAVAL DISTRICT	DMO CAPT W.J. WAGNER, MC, USN (ADDU)
NAVHOSP, GUANTANAMO BAY, CUBA	CO CAPT J.M. SANDERLIN, MC, USN DAS LCDR W.E. BRANSCUM, MSC, USN CH NURSE CDR J. GILLESPIE, NC, USN
NAVHOSP, ROOSEVELT ROADS, PR	CO CAPT W.J. WAGNER, MC, USN DAS CDR J. DEWITT, MSC, USN CH NURSE CDR B. SLATER, NC, USN
ELEVENTH NAVAL DISTRICT	DMO RADM W.P. ARENTZEN, MC, USN (ADDU) AO CDR J.B. KNIGHT, MSC, USN (ADDU)
NAVREGMEDCEN, CAMP PENDLETON, CA	CO CAPT R.F. MILNES, MC, USN DCS CAPT J.J. GUNNING, MC, USN DAS CAPT J.D. PRUITT, MSC, USN CH NURSE CAPT B. WEETER, NC, USN
NAVREGMEDCEN, LONG BEACH, CA	CO CAPT E.P. RUCCI, MC, USN DCS CAPT E.L. BINGHAM, MC, USN DAS CDR D.E. SHULER, MSC, USN CH NURSE CAPT M.J. NIELUBOWICZ, NC, USN
NAVAL SCHOOL OF HEALTH SCIENCES, SAN DIEGO, CA	CO CAPT R.E. HUNTER, MSC, USN XO CDR J.W. RICHARDSON, MSC, USN SR NURSE CAPT A.T. BUTLER, NC, USN
NAVAL ENVIRONMENTAL & PREVENTIVE MEDICINE UNIT NO. 5, SAN DIEGO, CA	OIC CAPT S.J. KENDRA, MC, USN AO LT D.R. GRAY, MSC, USN
NAVHOSP, PORT HUENEME, CA	CO CDR M.F. TANNER, MSC, USN DAS LCDR J.E. JOHNS, MSC, USN CH NURSE CDR M. GAMPPER, NC, USN
NAVREGMEDCEN, SAN DIEGO, CA	CO RADM W.P. ARENTZEN, MC, USN DCS CAPT M.J. VALASKE, MC, USN DAS CAPT A.C. HARRIS, MSC, USN CH NURSE CAPT D. CORNELIUS, NC, USN
NAVAL HEALTH RESEARCH CENTER, SAN DIEGO, CA	CO CAPT E.F. COIL, MC, USN XO CDR N.H. BERRY, MSC, USN
TWELFTH NAVAL DISTRICT	DMO RADM H.A. SPARKS, MC, USN (ADDU) AO CAPT W.G. BROWNE, MSC, USN (ADDU)
NAVREGMEDCEN, OAKLAND, CA	CO RADM H.A. SPARKS, MC, USN DCS CAPT I.J. WOODSTEIN, MC, USN DAS CDR H.H. SOWERS, MSC, USN CH NURSE CAPT K. ZABEL, NC, USN
NAVHOSP, LEMOORE, CA	CO CAPT E.B. MILLER, MSC, USN DAS CDR R.C. BUTLER, MSC, USN CH NURSE CDR P.J. PORTZ, NC, USN
NAVDISP, SAN FRANCISCO, CA	CO CAPT W.G. BROWNE, JR., MSC, USN XO LCDR D.L. KALFAS, MSC, USN

NAVAL DISEASE VECTOR ECOLOGY & CONTROL CENTER, ALAMEDA, CA	OIC LCDR J.A. MULRENNAN, MSC, USN AO ENS R.J. PARISEAU, MSC, USN
NAVAL BIOMEDICAL RESEARCH LABORATORY, OAKLAND, CA	CO CDR J.F. PRIBNOW, MSC, USN AO LT A.B. COBET, MSC, USN
THIRTEENTH NAVAL DISTRICT	DMO CAPT H.P. PARISER, MC, USN (ADDU) AO LCDR K.L. DARR, MSC, USN (ADDU)
NAVREGMEDCEN, BREMERTON, WA	CO CAPT H.P. PARISER, MC, USN DCS CAPT K.A. GAINES, MC, USN DAS CDR J.J. PALMER, MSC, USN CH NURSE CAPT M.G. STEWART, NC, USN
NAVHOSP, WHIDBEY ISLAND, OAK HARBOR, WA	CO CAPT C.L. KLEIN, JR., MC, USN DCS CAPT G.T. FAIRFAX, MC, USN DAS LCDR P.O. DILLEY, MSC, USN CH NURSE CAPT L. PETERSON, NC, USN
NAVDISP, NSA, SEATTLE, WA	CO CAPT C.F. TEDFORD, MSC, USN XO LCDR K.L. DARR, MSC, USN SR NURSE CDR J. SCHLOSSER, NC, USN
FOURTEENTH NAVAL DISTRICT	DMO CAPT P.F. WELLS II, MC, USN (ADDU) AO CDR R.W. TANDY, JR., MSC, USN (ADDU)
NAVREGMEDCLINIC, PEARL HARBOR, HI	CO CAPT P.F. WELLS II, MC, USN DAS CDR R.W. TANDY, MSC, USN SR NURSE CDR J.A. MORTON, NC, USN
NAVAL MEDICAL ADMINISTRATIVE UNIT, TRIPLER ARMY HOSPITAL, HONOLULU, HI	OIC CDR B.L. STEPHENS, MSC, USN
NAVAL ENVIRONMENTAL & PREVENTIVE MEDICINE UNIT NO. 6, PEARL HARBOR, HI	OIC CDR T.R. BYRD, MC, USN AO LT W.H. BERRY, MSC, USN
NAVAL DISTRICT, WASHINGTON, DC	DMO RADM D.E. BROWN, JR., MC, USN (ADDU)
NAVHOSP, ANNAPOLIS, MD	CO CAPT N.P. KITRINOS, MC, USN DCS CAPT R.A. PROULX, MC, USN DAS CDR A.J. ZSELTVAY, MSC, USN CH NURSE CDR L.E. SPENCER, NC, USN
NATIONAL NAVAL MEDICAL CENTER, BETHESDA, MD	CO RADM D.E. BROWN, JR., MC, USN DCS CAPT C.S. LAMBDIN, MC, USN DAS CDR G.P. KANE, MSC, USN CH NURSE CAPT F.T. SHEA, NC, USN
NAVAL HEALTH SCIENCES EDUCATION & TRAINING COMMAND, NNMC, BETHESDA, MD	CO CAPT J.W. COX, MC, USN AO CAPT C.B. LONGEST, MSC, USN SR NURSE CAPT W. COPELAND, NC, USN
NAVAL SCHOOL OF HEALTH CARE ADMINISTRATION, BETHESDA, MD	CO CAPT W.J. GREEN, MSC, USN XO CDR P. COLLIER, MSC, USN
NAVAL MEDICAL RESEARCH INSTITUTE, BETHESDA, MD	CO CAPT K.W. SELL, MC, USN AO CDR M.L. FITTS, MSC, USN

NAVAL MEDICAL RESEARCH & DEVELOPMENT COMMAND, BETHESDA, MD	CO CAPT C.E. BRODINE, MC, USN EXEC ASST CDR W. SCHROEDER, MSC, USN
NAVREGMEDCLINIC, WASHINGTON, DC	CO CAPT R.F. SCHINDELE, MSC, USN XO CDR H.H. COULSON, MSC, USN SR NURSE CDR P. STAAB, NC, USN
ARMED FORCES INSTITUTE OF PATHOLOGY, WASHINGTON, DC	DEP DIR CAPT E.C. COWART, JR., MC, USN AO LCDR R. PECK, MSC, USN
ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE, BETHESDA, MD	DIR CAPT E.C. COWART, JR., MC, USN AO LCDR L.E. ARNOLD, MSC, USN
NAVAL MEDICAL DATA SERVICES CENTER, BETHESDA, MD	CO CDR B.J. DIETZ, MSC, USN XO LCDR R.A. PAYTON, MSC, USN
NAVHOSP, PATUXENT RIVER, MD	CO CAPT M.C. CARVER, MC, USN DAS CDR B.R. ELFSTROM, JR., MSC, USN CH NURSE CAPT D.H. HOOKER, NC, USN
NAVHOSP, QUANTICO, VA	CO CAPT G.J. MC CLARD, MC, USN DCS CAPT T.J. TRUMBLE, MC, USN DAS CDR R.B. HINDS, MSC, USN CH NURSE CDR M.F. HALL, NC, USN
ITALY	
NAVREGMEDCEN, NAPLES, IT	CO CAPT H.O. KRETZSCHMAR, MC, USN DCS CAPT J.V. SHARP, MC, USN DAS CDR J.J. STEIL, MSC, USN CH NURSE CAPT M.J. WALKER, NC, USN
NAVAL ENVIRONMENTAL & PREVENTIVE MEDICINE UNIT NO. 7, NAPLES, IT	OIC CDR R.L. MARLOR, MC, USN AO LCDR J.F. CONNOLLY, MSC, USN
JAPAN	
NAVREGMEDCEN, YOKOSUKA, JAPAN	CO CAPT G.E. GORSUCH, MC, USN DAS LCDR T.E. THOMAS, MSC, USN CH NURSE CDR E. GRAVES, NC, USN
MARIANA ISLANDS	
NAVREGMEDCEN, GUAM, MI	CO CAPT C.E. MUEHE, MC, USN DCS CAPT R.E. WALKER, MC, USN DAS CDR F.C. PITTINGTON, MSC, USN CH NURSE CDR J.B. DUDLEY, NC, USN
CAIRO, EGYPT	
NAVAL MEDICAL RESEARCH UNIT NO. 3, CAIRO, EGYPT	CO CAPT W.F. MINER, MC, USN AO LCDR W.A. FERRIS, MSC, USN SR NURSE CDR M. SWETONIC, NC, USN
ADDIS ABABA, ETHIOPIA	
NAVAL MEDICAL RESEARCH UNIT NO. 5, ADDIS ABABA, ETHIOPIA	CO CAPT C.K. WALLACE, MC, USNR AO LCDR D.E. COLE, MSC, USN

TAIWAN

NAVHOSP, TAIPEI, TAIWAN	CO CAPT N.V. WHITE, MC, USN DAS CDR W. LEADFORD, MSC, USN CH NURSE CDR A. HARRISON, NC, USN
NAVAL MEDICAL RESEARCH UNIT NO. 2, TAIPEI, TAIWAN	CO CAPT P.F.D. VAN PEENEN, MC, USN AO LCDR R. ROBINSON, MSC, USN

PHILIPPINES

NAVHOSP, SUBIC BAY, ROP	CO CAPT S.A. YOUNGMAN, MC, USN DAS CDR W.L. BLANKENSHIP, MSC, USN CH NURSE CDR E.A. BAKER, NC, USN

SPAIN

NAVHOSP, ROTA, SPAIN	CO CAPT R.E. KINNEMAN, JR., MC, USN DAS LCDR R.A. MORIN, MSC, USN CH NURSE CDR E. SULLIVAN, NC, USN

HEADQUARTERS MARINE CORPS & FLEET MARINE FORCE

HEADQUARTERS, U.S. MARINE CORPS	CAPT D.R. HAULER, MC, USN AO CAPT L.W. GAY, MSC, USN
HEADQUARTERS, FMF ATLANTIC	(VACANT) AO CAPT E.T. STEWARD, MSC, USN
SECOND MARINE DIVISION SURGEON	CAPT D.W. HOPPING, MC, USN AO LCDR C.A. PRICE, MSC, USN
SECOND MARINE AIRCRAFT WING	CAPT M.G. WEBB, MC, USN (ADDU) AO LT J.L. JOHNSON, MSC, USN
HEADQUARTERS, FMF PACIFIC	CAPT B.C. JOHNSON, MC, USN AO CDR C.A. ROPER, MSC, USN
FIRST MARINE DIVISION	CDR D.R. LAWSON, MSC, USN
FIRST MARINE AIRCRAFT WING	(VACANT) AO LCDR J. DEWHIRST, MSC, USN
FIRST MARINE BRIGADE	CAPT L. FOUT, MC, USN (ADDU)
THIRD MARINE DIVISION SURGEON	CAPT E.F. LATHAM, MC, USN AO LCDR R.F. COXE, MSC, USN
THIRD MARINE AIRCRAFT WING	CAPT G.E. BALYEAT, MC, USN AO LCDR R.D. FRANCIS, MSC, USN
FIELD MEDICAL SERVICE SCHOOL, CAMP PENDLETON, CA	CO CAPT W.H. JONES, MSC, USN XO CDR E.N. CONDON, MSC, USN
FIELD MEDICAL SERVICE SCHOOL, CAMP LEJEUNE, NC	CO CAPT C.C. CALDWELL, MSC, USN XO CDR J.M. CORRELL, MSC, USN

—THIS ROSTER WAS PREPARED BY BUMED CODE 311A—

NOTES & ANNOUNCEMENTS

NEW DATES SET FOR COMMAND SCREENING BOARDS

Edition #35 of BUMED Talking Papers announced that Command Screening Boards for Medical Corps, Medical Service Corps, and Nurse Corps officers would meet in October 1975. Information recently received from the Chief of Naval Personnel indicates that, in October, the records to be considered in the boards' deliberations would be undergoing conversion to a microfiche format, and would not be available for review.

It is now planned that the boards will meet on the following dates: DC captains—10 December 1975; MC, MSC, NC captains—27-30 January 1976; MC, MSC, NC commanders/lieutenant commanders—23-27 February 1976.

Command Screening Boards are convened by the Surgeon General to recommend Medical Corps, Dental Corps, Medical Service Corps, and Nurse Corps officers for consideration as commanding officers, officers in charge, directors of administrative services, directors of clinical services, and senior staff officers. Year groups to be considered are:

MC —All captains through Year Group 52
DC —All captains through Year Group 53
MSC—All captains
All commanders
LCDRs through Year Group 67
NC —All captains
Commanders through Year Group 61

Details concerning the Dental Corps Command Screening Board will be forthcoming.

It is imperative that the officers eligible for consideration notify BUMED in writing if they do *not* wish to be considered for command opportunity. Officers in the Medical Corps and Nurse Corps should notify BUMED Code 3, and officers in the Medical Service Corps should notify BUMED Code 7 not later than 15 December 1975. The cutoff date for Dental Corps officers will be announced later.

Lack of notification by eligible persons will be construed as concurrence that they desire to be considered by the Board and, if selected, would accept orders, if offered, to an appropriate command or staff assignment.—Code 00.

MEDICAL CARE EVALUATION

BUMED has appointed a planning board to develop long range plans for the implementation of Joint Commission on Accreditation of Hospitals requirements for medical care evaluation. The final report of the board is not complete, but it is anticipated that the following recommendations will be made:

- That medical centers and hospitals adopt the JCAH Performance Evaluation Procedure (PEP) for auditing and improving patient care;
- That BUMED serve in an advisory capacity and not attempt to develop standard audit criteria. (Medical care audit criteria development is a medical staff function and should be accomplished at the local level.)
- That a contract computerized data retrieval and display system such as PAS-MAP (Professional Activity Study-Medical Audit Program) may contribute to the medical care evaluation program in some of our larger hospitals, although its use is not mandatory. Use of PAS-MAP is currently being evaluated at two medical centers.

It is anticipated that a BUMED directive will be issued at a later date. In the meantime, it is important that medical centers and hospitals develop a review system which meets the following JCAH requirements:

- Objective audit criteria must be established, to

include expected patient outcomes and, where appropriate, justification for the diagnosis, admission, and use of any specialized or hazardous procedure;

- The method used for retrieving and reporting data from patient records shall assure data reliability;
- All significant variations from established criteria shall be identified and justified;
- Inappropriate patterns of patient care must be corrected;
- Follow-up studies must demonstrate that the corrective action has been effective;
- The patient care evaluation activity must be documented and reported through the committee structure to the commanding officer.

JCAH conducts TAP (Trustee Administrator Physician) institutes and medical audit team seminars (MATS) which provide training in the PEP program. These institutes and seminars are sponsored by various state hospital associations. In addition, JCAH recently began to publish the *Quality Review Bulletin* (QRB), which is designed to keep hospitals informed of the PEP and other audit methodology. The QRB features detailed audits, audit criteria development, and an analysis of featured audits by the JCAH. JCAH will also review individual hospital audits and provide hospitals with an analysis of the strengths and weaknesses of the audit.

Navy hospitals and medical centers are encouraged to avail themselves of these aids in implementing audit requirements, and to share audit criteria among themselves and with BUMED.—BUMED Code 00.

INTERNATIONAL FLYING NURSES ASSOCIATION

Members of the Navy Nurse Corps who hold a pilot's license and are interested in representing Navy nurses in an international organization of flying nurses, please contact: LCDR Jo Craemer, NC, USNR, Branch Dispensary, NAS Brunswick, Maine 04011.

NAVY SURGEONS TO MEET

In conjunction with the American College of Surgeons meeting next month in San Francisco, a Navy cocktail party will be held on Wednesday, 15 October 1975, from 1830 to 2200 at the Marines' Memorial Club, 609 Sutter Street, San Francisco, California.

Inquiries may be made to: Captain V.H. Fitchett, MC, USN, Chairman, Department of Surgery, NRMC Oakland, California 94627.

NURSING DIVISION STAFF CHANGES

New names and new faces are in place in the Nursing Division, BUMED Code 32. This revised roster is provided for your information:

Code 32—Director: RADM Maxine Conder, NC, USN

Code 32-A—Executive Assistant: CDR Nancy L. Lundquist, NC, USN

Code 321—Nurse Corps Branch, Deputy Director and Personnel Actions: CAPT Jean L. Miller, NC, USN (until retirement in January 1976), followed by CAPT Mary J. Nielubowicz, NC, USN

Code 3211—Junior Officer Detailer: LCDR Joan M. Engel, NC, USN

Code 322—Professional Nursing Branch: CAPT Bettye G. Nagy, NC, USN

Code 323—Planning Branch: LCDR Ann Langley, NC, USN

Assistant to the Inspector General, Medical, for Nursing (Code 007): CAPT Katherine Wilson, NC, USN

Nurse Corps Liaison at the Bureau of Naval Personnel (Code 4415a): LCDR Beatrice D. Becktell, NC, USN

NEW TELEPHONE NUMBERS FOR BUMED CODES 33 AND 74

Incident to the BUMED reorganization earlier this year, the Physical Qualifications & Medical Records Division (Code 33) split into two divisions: the Physical Standards & Special Review Division (Code 33) and the Health Records Division (Code 74). All of Code 33 and a portion of

Code 74 have relocated from the Crystal City complex to Potomac Annex. Key telephone numbers are:

Code 33 —Physical Standards & Special Review Division (physical examination and entrance standards, medical boards and medical disposition, etc.)
(Area Code 202) 254-4665
Autovon: 294-4665

Code 741—Special Correspondence Branch (formerly Congressional Correspondence Branch)
(Area Code 202) 254-4082
Autovon: 294-4082

Code 742—Records Management Branch
(Area Code 202) 697-4422
Autovon: 227-4422

AEROSPACE MEDICINE CAREERS STUDIED

As the first step in a study of career enhancement opportunities in the specialty of aerospace medicine, a preliminary report has been prepared identifying the current and future aerospace medicine mission and the roles of a flight surgeon. The report is a forward-thinking outline of what aerospace medicine *should* be and what flight surgeons of the future *should* do. When the report was promulgated at the recent Aerospace Medical Association meeting in April to the full spectrum of flight surgeons, reaction to it was favorable.

With mission and roles identified, we are currently evaluating the requisite initial training, billet numbers, experience and education necessary to specific assignments, career-enhancing patterns of duty, and career opportunities. A career track has been developed that allows an energetic, ambitious physician to select specific career paths (clinical, operational, research, executive), and through mutual agreement between the individual and the detailer to program progressive steps along those paths. At certain career stages the individual will be presented options for changing his selected path. This diagrammed career track gives all physicians the opportunity to plan their career, to measure their career progress, and to crystallize their career goals.

Implementation of clearly defined career tracks, from initial training to final assignment, should improve the attraction and retention of Navy flight surgeons, particularly when flight surgeon training and experience is certified and creditable on a par with traditional clinical specialty experience.

There is a continuing need for flight surgeons in a variety of operational support roles. With more billets available than there are designated flight surgeons, anyone interested in the challenges of operational aviation medicine is encouraged to seek such an assignment.

Physicians not yet designated as flight surgeons may enroll in the next student flight surgeon class, which commences in January 1976. This six-month training course is given at the Naval Aerospace Medical Institute, Pensacola, Florida. Physicians interested in a shorter course, or who do not qualify physically for flight training, may enroll in a one-month orientation course leading to the designation of aviation medical officer (AMO). Prospective candidates for either course are urged to contact BUMED Code 511, CAPT W.W. Simmons (MC), for application forms or further information. Telephone: Autovon 294-4361.

Many interesting and challenging billets are available for designated aviation medicine officers and flight surgeons. Any flight surgeon approaching release from active duty or projected rotation date may request a permanent change of duty if he or she agrees to remain at a new duty station for at least one year in the continental United States, or for the BUPERS-required tour at overseas bases. Many reserve flight surgeons who have received release from active duty orders are eligible for transfer to a vacant billet of their choice if they agree to extend their period of active duty.

For specific details about any flight surgeon billet, or to discuss your individual career plans, contact CAPT W.W. Simmons at the address given above.—BUMED Code 51.

PERSONNEL OFFICERS CONFERENCE HELD

In June 1975 the Manpower Management and Requirements Division (BUMED Code 37) hosted a Personnel Officers Conference. At the conference recent developments in manpower management, personnel administration, civilian positions management, and related problem areas were discussed; OPNAV also gave a presentation on SHORSTAMP/SHOROC.

Approximately 40 officers from BUMED Command activities attended the conference. A similar conference is being planned for the third quarter of FY 76 if funding permits.—BUMED Code 37.

FIRST AMO CLASS GRADUATES

CAPT William N. Elam, MC, USNR, senior medical officer at Branch Dispensary, Navy Air Facility, Washington, D.C., is the first of a new breed of Navy physicians: the aviation medical officer (AMO).

CAPT Elam

Physicians trained as AMOs will be assigned to installations where medical services for flight crew personnel are required, but no flight surgeon is available. They will also augment flight surgeons where aeromedical workloads are heavy, and will help meet contingency requirements for aeromedical personnel to deploy with the Fleet Marine Force and Navy Air Wings should an emergency arise.

AMOs differ from flight surgeons in several respects:

- They are graduates of a four-week orientation course, considerably shorter than the six-month training period required for flight surgeons.
- Unlike flight surgeons, AMOs do not undergo flight training, are not assigned duty involving flying, and need not be volunteers for hazardous duty flying. Rather, AMOs perform selected aeromedical duties at base dispensaries or in other assignments as backup support for flight surgeons.
- AMO training does not incur a service obligation, as does flight surgeon training.

AMOs will perform flight physical examinations, provide routine medical care for uncomplicated illnesses in aviators and other aircrew personnel, and be authorized to sign aeromedical clearance notices.

Training of AMOs is conducted at the Naval Aerospace Medical Institute, Pensacola, Florida. The curriculum covers all aspects of aviation medicine, including physiology, flight physical examinations, and special medical problems unique to flying personnel.

The first four Navy physicians to participate in the new AMO program completed training in June. In addition to CAPT Elam, graduates of the first training course included: CDR John E. Gray, MC, USNR, NRMC Portsmouth, Virginia, and CDR Victor R. Gullatt, MC, USNR-R, Naval Air Reserve Unit, Jacksonville, Florida. CDR Clyde A. Lynn, MC, USNR, a designated Navy flight surgeon who recently returned to active duty, also completed the course as refresher training, a secondary purpose of the program. CDR Lynn serves at Naval Air Station, Dallas, Texas.

Additional AMO training courses are scheduled to begin 3 November 1975, 2 February 1976, and 3 May 1976. The training is designed for Navy physicians (clinical specialists and generalists) who are assigned to an aviation activity to provide primary patient care. Interested medical officers should apply via BUMED and the chain of command to the Commanding Officer, Naval Health Sciences Education and Training Command, National Naval Medical Center, Bethesda, Maryland 20014.

AMOs will be assigned a secondary naval officer billet classification (NOBC-0008) to enable BUMED to detail them where their primary clinical expertise is needed, and where their aeromedical capabilities can also be used to meet operational requirements.—BUMED Code 51.

DENTAL CONTINUING EDUCATION COURSES

The following dental continuing education courses will be offered in November 1975:

National Naval Dental Center, Bethesda, Maryland

Oral Surgery	3-7 Nov 1975
Maxillofacial Prosthetics	17-21 Nov 1975

Eleventh Naval District, San Diego, California

Operative Dentistry	17-19 Nov 1975

U.S. Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C.

Prosthodontics	17-20 Nov 1975

BUMEDNOTE 1500 of 12 June 1975 should be consulted when applying for dental continuing education courses, with the exception of courses administered by the Commandant, Eleventh Naval District. These latter requests should be submitted to the Commandant, Eleventh Naval District (Code 37).

☆ U. S. GOVERNMENT PRINTING OFFICE : 1975 211-336/T-2

Cross-country travel for dental continuing education courses and professional conferences will generally not be approved because of funding limitations. Travel from outside CONUS also will generally not be approved.—BUMED Code 6.

CONGRESSMAN WHITEHURST ADDRESSES GRADUATING DENTAL OFFICERS

The Naval Graduate Dental School (now redesignated the National Naval Dental Center), Bethesda, Maryland, held its 76th graduation ceremony on 20 June 1975 in the National Naval Medical Center auditorium, with the Honorable G. William Whitehurst, member of Congress from the Second District, Virginia, as principal speaker. Discussing "The Current Status of the 'Experiment' with an All Volunteer Military Force," Congressman Whitehurst outlined the history of the all volunteer force and concluded that in order to obtain and keep high caliber personnel, the Armed Forces must provide not only financial incentives but also the less tangible benefits that improve the quality of life in the services.

A total of 29 dental officers completed the School's first-year graduate level courses, for which The George Washington University, Washington, D.C., grants the degree of master of science in special studies (oral biology). Twelve officers completed residencies in dental specialties.

CDR Thomas A. Wight (DC), a graduate of the first-year program in prosthodontics, received the Commanding Officer's Award For General Excellence and the Naval Graduate Dental School's Award For Achievement in Research Methods; he shared the latter award with CDR John C. Bauman (DC). The Commanding Officer's Award For Excellence in Operative Dentistry was presented to LCDR Bruce R. Fox (DC).

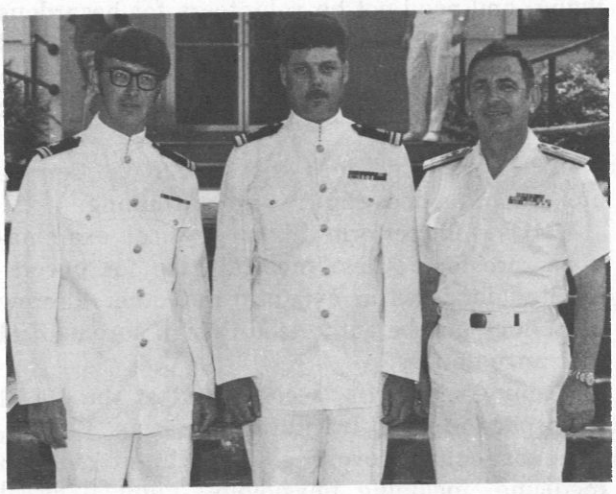
The Commanding Officer's Annual Award For Civism and a plaque from the School were presented in absentia to retired Navy Dental Corps officer CAPT Robert A. Colby in appreciation of his many contributions to the educational activities of the Naval Graduate Dental School and his inspirational guidance of the oral pathology staff.—PAO, NNMC, Bethesda, Maryland.

CDR J.C. Bauman (left) and CDR T.A. Wight await presentation of their dental research awards from RADM G.D. Selfridge, CO of the National Naval Dental Center.

MORE MEDICAL DEPARTMENT GRADUATES

Sheila M. McCabe received a corsage and a Navy commission in May, becoming the first woman dental graduate of Georgetown University, Washington, D.C., to join the Navy Dental Corps. A native of California who received her B.A. degree from Lone Mountain College in San Francisco, LT McCabe will join the staff of Naval Regional Dental Center San Diego.

RADM R.W. Elliott, Jr. (DC), chief of the Dental Division at BUMED, was among the first to congratulate LTJGs Dennis M. Davidson (MSC) and John Willems (MSC) as they received their bachelor of science degrees in health care administration from The George Washington University, Washington, D.C., in June. The two officers are former enlisted dental technicians.



RADM R.W. Elliott, Jr., was on hand to congratulate LTJGs D.M. Davidson (left) and John Willems as the former dental technicians graduated from George Washington University. The graduates are now members of the Medical Service Corps.

OFFICIAL INSTRUCTIONS AND DIRECTIVES

BUMEDINST 6320.1D of 24 April 1975

Subj: Medical regulating to and within the Continental United States

This regulation establishes administrative procedures and responsibilities for regulating the transfer of patients from oversea areas to the CONUS, and the transfer of patients between uniformed service medical treatment facilities within the CONUS; it also gives procedures for requesting bed designations in VA medical treatment facilities for members of the uniformed services who require further hospitalization or nursing home care after separation or retirement from the service.

The Armed Services Medical Regulating Office is now responsible for regulating *all* patient transfers. Patients will be directed to the nearest uniformed services medical treatment facility that has the capability to provide the required care.

Included in this instruction are changes to the patient coding system used in ASMRO reporting.

BUMEDINST 5220.3 of 29 May 1975

Subj: Quality assurance and revalidation of aviation physiology training devices

All aviation physiology training devices will be inspected annually for quality assurance and revalidation (QA&R). BUMED will issue inspection schedules, and budget for and appoint the senior military inspector for these inspections. The Chief of Naval Education and Training Support Program Manager or the delegated field activity QA&R staff will coordinate the schedule with BUMED.

BUMEDINST 5100.10 of 29 May 1975

Subj: Safety standdown for aerospace physiology training activities

Major aerospace physiology training devices represent a potential threat to the physical well-being of aircrew trainees. All aerospace physiology training activities will therefore maintain a Safety Standdown Program to review standing operating procedures for aerospace physiology training devices; instill safety consciousness in assigned personnel; and review medical hazards and treatment of reactions or emergencies that might occur in rapid decompression chambers, emergency egress trainers, and disorientation devices. The CO of each aerospace physiology training activity shall hold semiannual safety standdowns following guidelines set forth in enclosure (1) to this instruction.

BUMEDINST 6260.2D of 29 May 1975

Subj: Grease gun/paint sprayer injuries; care of

Personnel who operate grease guns or paint sprayers powered by high-pressure air may inadvertently inject grease or paint into their tissues, particularly their fingers and hands. Although resultant internal tissue damage is usually severe and extensive, the injury usually appears deceptively minor. This type of injury has great potential for life-endangering infection, and amputation is frequently required. Surgical experience to date indicates that early decompression and debridement is the chosen treatment.

Medical Department personnel should consider as severe any injury in which high-pressure air injects foreign matter into the tissues, and should be alert for associated injury. Patients should be kept in a prone position, unless associated injuries indicate otherwise, and treated for shock; they should not eat, drink, or be given oral medication. For severe pain, one syrette (16 mg) of morphine or equivalent analgesic may be injected. Hot soaks should not be applied, and local drainage or squeezing of the entry site should not be attempted. Patients should be immediately referred for surgical consultation, transported as litter cases with an attendant.

[High-pressure hydraulic systems and other systems which have fluid under high pressure can also produce grease-gun type injuries. *Any* injury in which the injection of *any* material under high pressure is suspected (other than immunization injections administered by "gun") should be dealt with as a grease-gun injury, in accord with the procedures set forth in this instruction.—BUMED Code 561.]

U.S. NAVAL PUBLICATIONS and FORMS CENTER
ATTN: CODE 306
5801 Tabor Avenue
Philadelphia, Pa. 19120
Official Business

POSTAGE AND FEES PAID
DEPARTMENT OF THE NAVY
DoD-316

THIRD CLASS MAIL

MILITARY SERVICE: A FAMILY TRADITION

LCDR Robert L. Pentecost, DC, USN, a second-year resident in comprehensive dentistry at the National Naval Dental Center, Bethesda, Maryland, is congratulated by his grandfather, MAJGEN Jesse E. McIntosh, USA, Retired (right) and his father, CAPT John W. Pentecost, DC, USN (left) on his graduation from the first-year program. The occasion brought back memories for CAPT Pentecost, now serving at Naval Regional Dental Center, Pensacola, Florida. Sixteen years earlier, he completed advanced residency training in general dentistry at what was then the Naval Dental School, Bethesda.—PAO, NNDC. Photo by R.M. Oswald.